

Radio Control
CAR ACTION

THE WORLD'S LEADING R/C CAR MAGAZINE

**Duel of the
Decade**
Associated's
B2

vs.

Losi's
CR

Find out
who won!
—pg. 70

OFF-ROAD
**TIRE
GUIDE**

43

**SPIKES
RIBS & PINS**
How to choose 'em
How to use 'em

November 1997

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**GET TOTALLY
TUNED** Stock Motor
Maintenance Tips

FIRST LOOK!
ASSOCIATED

B3

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Radio Control CAR ACTION

VOLUME 12, NUMBER 11 • NOVEMBER, 1997

features



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92



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Tamiya's latest—the
TA03R-S Porsche 911
GT1 (photo by John
Howell); main image:
Team Associated's
RC10B2 and Team
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battle it out for top
buggy honors (photos
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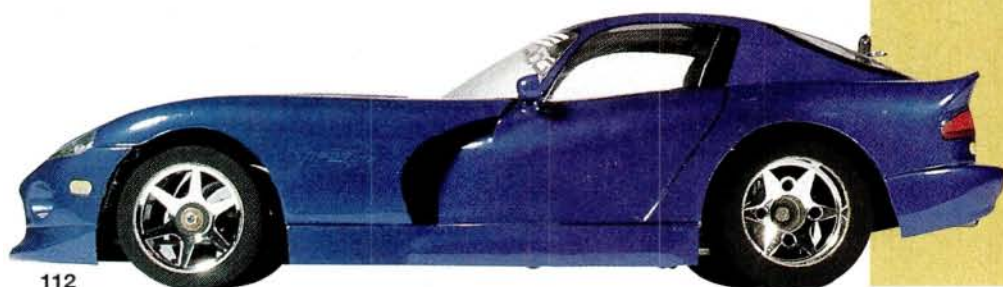
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ON THIS PAGE: (from top to bottom): a first look at Associated's B3 (photo by Walter Sidas); Tamiya's TA03 R-S Porsche 911 GT1 pounds the pavement (photo by John Howell); Schumacher's Fireblade 2000 tears it up (photo by John Howell); Yokomo's all-business YR-4M2 tourer (photo by John Howell); Parma's stylish Dodge Viper GTS (photo by Walter Sidas).



Titanic battles:

Ali vs. Frazier, McGrath vs. Emig, King Kong vs. Godzilla ... and, of course, Associated RC10B2 versus Losi XX 'CR.' You can't talk about all-time great competitors without having these two in the mix. But this isn't just talk—not idle bench chatter. This is the real deal; we have pitted the twin titans of off-road buggydom against each other in mortal combat. I'm sure you have your own favorite; when it comes to Losi and Associated, no one is undecided about which they think is best! Well, whoever you're rooting for, I bet 50 percent of all R/C racers will say you're wrong. Just look at the results column for any big race: it's always Losi, Associated, Losi, Losi, Associated, Losi, Associated ... you get the idea. It wasn't always this way, however; there was once a time when there was more depth to the 2WD buggy class, and team L and team A were as hungry for a win as the other guys. But ultimately, because of their perseverance, the Big Two prevailed over the rest with their total commitment to performance. Though I do lament the lack of variety in the ranks of elite racing-buggy chassis, it feels mighty good knowing that the two finest R/C buggies in the world are from the good ole U.S. of A.

Any serious off-roader will tell you that if you don't have the right tires, you're just spinning your wheels. Today's high-performance buggies wouldn't be so high performance if it weren't for the quantum leaps made in tire development during the past three years. Softer and more adhesive rubber compounds and computer-designed treads and carcasses provide traction that pushes the off-road performance envelope and challenges the very best suspension designs to "keep up." With so many new compounds and tread designs available, we thought it was time to put together a guide to help you determine which off-road tire is best for your buggy—to save you time and money otherwise spent on the old trial-and-error method of tire selection. Veteran racer or newbie, you owe it to your lap times to check this issue's "Buggy Tire Guide."

We at R/C Car Action welcome aboard new Associate Editor Peter Vieira. Pete has been with us as a contributing writer for about a year—without missing a deadline. We had to hire him to figure out how he does it!

That's it for now. If you have access to a computer, please stop by our website at www.airage.com/rcca. We'll leave the light on for you.



Frank Masi, Editor-in-Chief
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Radio Control CAR ACTION

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LETTERS

Combining Parts

My friend has a Tamiya 4x4 Hummer that rolls a lot with the stock motor. He's thinking about putting wide wheels and tires on, but he doesn't know where to get them. He is also strongly considering making longer A-arms to widen up the truck. Can this conversion be done?

Also, I have the Stadium Blitzer, and the gearbox broke. Is it possible to install any TA01 gearbox parts? If it is, which ones can I install? Oh yes, does the Stadium Blitzer have a gear or ball diff?

ALWYN

South America, via email

Your friend can widen his Tamiya Hummer by installing Tamiya Manta Ray front and rear suspension arms. Of course, he'll also need four Manta Ray dogbones, four Manta Ray molded upper links (control arms) and two Manta Ray steering rods to complete the conversion. He may also need to open up the body's wheel wells to prevent the tires from rubbing (they'll end up sticking out of the body like they do on a stadium truck). I don't recommend that you install larger-diameter tires because they require a lower gear ratio, and you would end up with a hot motor and short run times. If you

decide to install wider or larger wheels and tires despite my friendly warning, pick up some Super Blackfoot, Stadium Blitzer, or Stadium Thunder wheels and tires; you can bolt them right on.

I'm afraid that your TA01 gearbox parts will not work on the Blitzer. They're two completely different chassis. The Blitzer comes with a bevel gear diff, not a ball diff. I'm not sure, but you may be able to install your TA01's ball diff in the Blitzer's gearbox. Many of Tamiya's cars use similar gear sets. As I said, though, I'm not sure whether it can be done, but you can most certainly examine the two diffs for similarities. If it doesn't work, I'm sure Tamiya has an optional ball diff for your truck.

A bunch of *Car Action* staffers went off-road racing this weekend, and we met a young man at the track with a Blitzer. He had installed Team Losi Silver IFMAR pins out back and Pro-Line Edge tires up front. His truck was pretty dialed, and it was very competitive in the stock class. I thought I'd share that with you.

—G-Man

Making Waves

I use an older Futaba Magnum AM, and I would like to switch to a newer FM model (I'm looking at the KO Mars, Airtronics 3PS and JR 756), but I would like to keep my current servo (Futaba S9301). How can I use one of these radios with it? Should I buy the transmitter only and then buy an aftermarket receiver that is compatible with many plug systems? Thanks a bunch!

LANCE LUCAS
Beaverton, OR

Lance, your Futaba servo will work with any of the radio brands you men-

tioned. Just be sure to observe the polarity on the connector plugs that go into the receiver. To the best of my knowledge, Airtronics is the only company that places the "red" (positive) lead on the outside of the receiver connectors. Futaba, JR and KO all place their red leads in the middle of the connectors. If you buy an Airtronics radio, you'll have to swap the negative and positive leads. You'll also have to install an Airtronics connector on your servo or modify the Futaba "J" plug. If you buy a JR or KO radio, the servo will be compatible. Hope this information helps.

—G-Man

Finding the Fiber

I often read your magazine and am very pleased with the job you do. I noticed that many R/C cars use chassis built of carbon fiber or similar, thin, lightweight, strong materials. I am gathering materials to build an R/C hovercraft, and I would like to use carbon-fiber plate for the platform/chassis; however, I need a rather large piece (36x20 inches). Where can I get this stuff?

PHIL HAYES

Camp Pendleton, CA

Thanks for the kind words, Phil. I went through a scratch-building phase a while back, and I also wanted to build with carbon-fiber plate. I wound up using G-10 "fiberglass" instead. I put the quotes on there because G-10 isn't really fiberglass at all; it's a composite. You can buy it in sheets of different thicknesses from your local plastics dealer (check "The Yellow Pages"). They may also be able to locate the carbon fiber as well, but I would stick with the G-10; it's much less expensive and easier to work

with. Just be sure to wear a respirator when you cut it; the dust is incredibly fine, and you don't want to breathe it. As for your hovercraft project, it sounds cool! There is an easier way to go R/C hovercrafting, however. Kinetics sells a terrific hovercraft kit that is a lot of fun to build and operate. You can build an SK-5 assault version (reviewed in the January '97 issue of *R/C Boat Modeler*), a more mild-mannered SRN-6 ferry, or a wild 3-motor LCAC-1 machine. Give Kinetics a call at (425) 641-5611.

—Peter

Welcome Back

I've been out of the R/C world for about seven years. After unpacking all eight of my old R/C cars, I ordered a subscription to *R/C Car Action* for the first time in many years. In the very first issue, I noticed that the new cars are "computer-precise," unlike my Superchamp, Falcon, Frog, Blackfoot, Boomerang, Bruiser, RC10 and McAllister Outlaw. Compared to the newer cars, they seem ancient! I plan to add a few of these new cars to my collection. It's great to be back in the R/C world again!

DAVE BILL

Enfield, NH

Hey Bill, great to have you back. If a retro-race class ever starts up, you'll be the man to beat! The superiority of today's machines is apparent in pictures, but wait until you actually try the stuff. You'll find that R/C technology has made a quantum leap in ease of use, durability and run time. You'll also find that the hobby is more affordable now than it was then! I was going to close my response with "Have fun," but you don't need me to tell you that; you'll have a ton of fun!

—Peter

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

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In search of fun
and glory, 'cause
life's too short
to be a sheep • by Chris Chianelli and Peter Vieira

INSIDE scoop

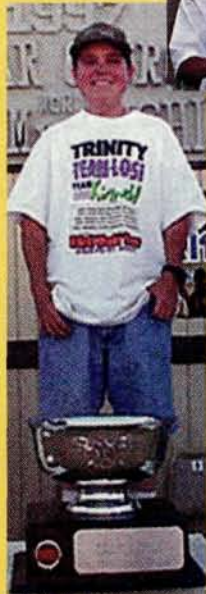


LATE-BREAKING NEWS FLASH!!

Kinwald and Hirosaka Win Worlds

The IFMAR World Championships have wrapped up, and Brian Kinwald has delivered Team Losi their first world championship title by putting his Trinity-powered Double-X 'CR' buggy into the top spot. Perennial 4WD world champ Masami

Hirosaka once again piloted his Reedy-powered



Yokomo four-wheeler to victory lane. He drove a prototype version of an all-new car, the MX-4—a true rough-track Yokomo! The pics are straight from the digital camera of our own John Howell, who spent a sun-filled week covering

this important event for the December issue of *R/C Car Action*—you won't want to miss it!

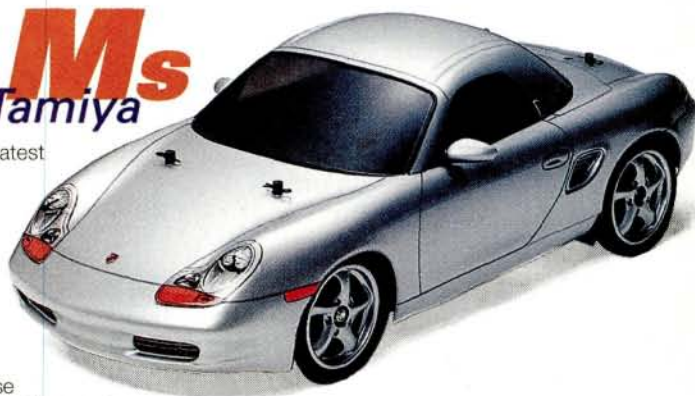
More Ms from Tamiya

Look closely at this latest

Tamiya release—Porsche's "affordable" Boxster roadster. This cozy convertible is built around the popular M-scale chassis—in this case, the rear-drive, long-wheelbase

M02L variation. Something totally new is going on here besides the new bod, though; look at those sedan-size wheels! Tamiya clipped a few teeth off the pinion to compensate for the taller rolling stock, but they claim the car is still faster than other M-cars spinning the smaller rubber. Looks and speed? Bavarian picnic, anyone?

Here's another M-azing entry in Tamiya's M-chassis line—the Honda S-MX Lowdown. The full-scale car is currently a big hit in Japan. (What, are they all Boz Scaggs fans?) [Editor's note: please forgive that last joke.] Although the real thing won't make the trip to America, Tamiya's one-tenth is here today. The Lowdown scoots around on an M01 chassis. That's the short-wheelbase, front-drive version. It should be a quick handler, and the people-mover looks will keep you stealthy at the race-track. Finally, here's a look at the latest body for the TL01 chassis—an Alfa Romeo 155V6TI. "Thrash Test" coming soon! For more information, contact Tamiya, 2 Orion, Aliso Viejo, CA 92656-4200; (800) TAMIYA-A; fax (714) 362-2250.



DS IS FOR Double-Sticky

Always on the lookout for better performance, with the help of the tire gurus at Pro-Line, Associated has developed hot new rubber for the Dual Sport series. The result is their new G-Compound tires, which include the improved blue foam inserts. Hmmm, G-Compound ... is that named after our resident Dual Sport fanatic, George "G-Man" Gonzalez? Shameless, unfounded swipes at the Geemeister aside, these new meats should further expand the Dual Sport's performance envelope with enhanced cornering prowess and high-speed control. For more information, contact Pro-Line, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968.

Ready-Built **Bowtie**

Want to get behind the wheel of the new Corvette in a hurry without donning a ski mask and ruining some bank teller's day? Run to the hobby shop and pick up Kyosho's '97 Corvette. This is Kyosho's latest offering in their beginner-friendly Mantis line, and it's a great way to jump into R/C if you haven't already taken the plunge (do it; you know you want to). The Corvette is available in nitro (GP) and electric (EP) versions, both of which arrive 90 percent built. Pavement-pounding action is just a little final assembly and a paint job away. If you're in a real hurry, you can even buy the 'Vette in ready-to-run form with a Futaba radio installed. Nice! For more information, contact Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021; (217) 398-6300; fax (217) 398-1104.



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Our 128 Tooth Spur Is Lighter Than Most 100 Tooth Spur Gears!

HARD-CHARGIN' DYNO



If you're one of those guys who just can't have enough data to tune with, this is the dyno for you. The Robitronic Pro Master is a new concept in dyno design; it replaces the traditional slave motor setup with a trick, flywheel load device. Voltage output characteristics of a Ni-Cd pack cannot affect test results because the Pro Master uses AC power to deliver a Ni-Cd pack simulation that's the same every time, for repeatable accuracy. An accessory printer can rattle off a hard copy of your motor's data, or you can load the test results into your PC and see them in graphic form. The Pro Master will measure top rpm, torque, current drain, power and efficiency. Did I mention that it also charges batteries? Yep, you can adjust the Pro Master to deliver up to 10 amps of juice in linear or flex modes with temperature or delta-type peak detection. You can even store up to five charging programs. Gee, do you think it's trick enough? For more information, contact Robitronic, Brunhildengasse 1/3, Vienna, Austria A-1150; (431) 982-0920; fax (431) 982-0921.

SHINY HAPPY ALLOY PARTS



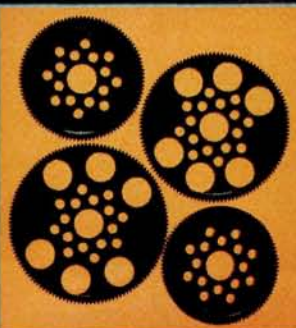
Can there ever be enough shiny alloy parts on your car? If you're anything like me, the answer is "No!" The latest batch of CNC'd goodies from Hammad Ghuman will help beef up your B2 in the rough and your RS4 on the smooth. HG's rear shock tower for Associated's B2 is machined from aerospace-quality alloy and left in a natural finish. Stiffer than stock, the HG tower should help the B2's rear boingers to do an even better job of taming terrain. If you're a sedan man ("sedan person" doesn't rhyme), try HG's front and rear shock towers and body-mount brace for the HPI RS4. For more precise control, stiff shock towers let the suspension suspend instead of flexing. Of course, the real draw is the glitz. You can polish this stuff till it glows! For more information, contact Hammad Ghuman, 6 Tower Heights, Albany, NY 12211; (518) 458-8441.



FRICTION

SUPER GEARS

- New Super Low Drag Narrow Tooth Design •
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- Super True, Super Light, Super Quiet •
- 84 & 87 Tooth Sizes For Losi XX-CR & XXT-CR •
- 95, 100, 120, & 128 Tooth For On-road Racing •
- Dual Diff Ball Holes For Stealth & Corally Diffs •



INSIDE scoop

Just Good Ole Boys... Never Meanin' No Harm...

Ba-na-NA-na-na-na-na-NA-na-neahhh! No, I don't have a thing for bananas. I was trying to put that cloying melody of the General Lee's horn into prose. I don't think it worked. Bolink has a sure-fire hit with this '69 Charger. Sure, somebody might not paint this thing like the General Lee, but there's always that yellow Charger from the Peter Fonda classic "Dirty Mary and Crazy Larry." Never heard of it? And you call yourself a "car guy"—hah!

The Charger will fit Bolink's Spec Racer, Fastruck and Sport 2000 chassis in the narrow configuration, as well as all superspeedway cars and Associated's Dual Sport cars. Another version fits all the popular 1/12-scale chassis in addition to Bolink's own Digger and Minicup cars. I can't wait until Bolink does a "Starsky and Hutch" Torino. I've heard that Frank [Masi, editor-in-chief] is already prepping his rally-car chassis to accept the Charger body (all the better to clear Beaver Creek). Yeeeeehaaaaahhh! By the way, have Daisy Duke and Dirty Mary gone down to the swimmin' hole? I reckon I'll have to investigate the situation for myself. For more information, contact Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30245; (770) 963-0252; fax (770) 963-7334.



SCALE TAILS



Even if there were some exotic, graphite go-fast machine somewhere else in this edition of "Scoop," it wouldn't out-cool these new sedan tailpipes from RPM. Check out their Fatboy pipe. How cool will that look on the back of your car? RPM says that the fatty is scale for the 4-inch pipes that poke out of full-scale racing

sedans, and their Slim Twinz design delivers hot dual-pipe looks. Both styles have a lustrous, plated finish and a simple mounting bracket you can easily install with double-sided tape. Oh, and

these pipes are for electrics only, so don't try to pump your nitro fumes through 'em—ALL RIGHT!! For more information, contact RPM,

14978 Sierra Bonita Ln., Chino, CA 91710; (909) 393-0366; fax (909) 393-0465.

And The Winner Is! ... Brian

(yeah Brian! yeah Brian!)

I received so many WRONG answers in response to the "Name the Car" contest from the August Scoop. I loved it; truly, I did. Let me see ... I got 19 guesses of Porsche 928—WRONG!

Three people thought it was a Porsche 911—WRONG! Four said it was an Avanti—WRONG! Eighteen said a Ferrari GTO—WRONG! Fourteen tried Jaguar XKE—WRONG! Thirty-one went for Datsun 240Z—WRONG! And one person thought it was a Boxster GT. Boxster GT ... what is that? So many guesses were totally WRONG! WRONG!! WRONG!!! A few buffs out there, however, did know, and one is Brian Schwenka of Washington state.

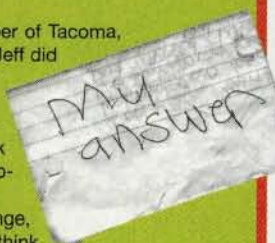
Oh yes; I almost forgot! The car is a Toyota 2000 GT. It was made available to the public in 1967 and was produced for a short time—I mean very short. Only 337 were made. The car was awesome and, I thought, great-looking. I don't know why it was never imported into the U.S. They would have sold a ton of them. It was powered by a dual overhead cam straight six that produced about 150hp. It sported a fully independent suspension and 4-wheel disk brakes. Designed by 240Z creator Albrecht Goertz, the 2000 was also produced in a rag-top roadster version in extremely small numbers. See the 2000 roadster in action (driven by a beautiful woman, of course) in the old James Bond movie "Thunderball." It starred Sean Connery—the best Bond ever. Today, the Toyota 2000, GT or convertible, is worth a veritable fortune. Congratulations, Brian; you'll receive your free one-year subscription to *Car Action* soon.



CONSOLATION FOR CONSIDERATION

The "Most Considerate" award goes to Jeff Maycumber of Tacoma, WA. No, Jeff did not name the car correctly, and yes, Jeff did send his response to the wrong address. (Many thanks to Sunrise R/C for forwarding his letter.) Jeff did, however, thoughtfully label his little folded-up letter so that I wouldn't confuse it with the others. Thank you, Jeff; you'll start to receive your one-year free subscription to *Car Action* very soon. Congratulations!

For those of you who think this award is a bit strange, remember. This is *my* page! *MINE!!* Wait a minute ... I think that's what I'm supposed to say on that page at the back of the magazine. Oh, well ... too bad!



SNEAK PEEK

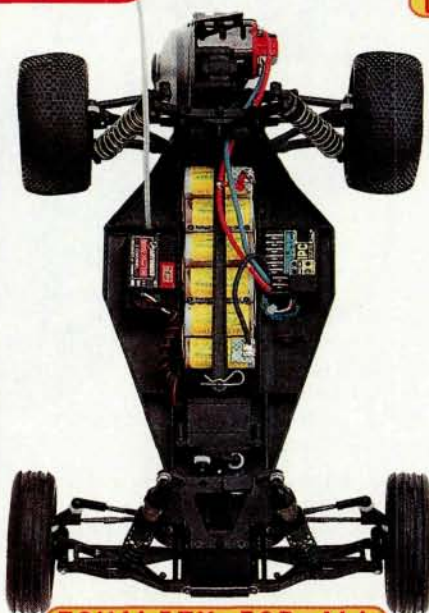
by Peter Vieira

RC10

B3

**Associated redefines
RC10 performance ...
again**

WHAT? Already? It took more than 10 years for the original RC10 to evolve into the RC10B2, yet in just over two years, we have the new B3. Why so soon? After all, the B2 was no slouch; it was the '95 world champ! Insiders at Associated tell us that they had planned a truck version of the B2 (the new T3—see last month's issue) even before the car debuted at the '95 Worlds in Japan. Additionally, Associated's goal was to take what they learned in the development of the T3 and apply this back to the buggy—presto, you have the B3.



EQUALITY FOR ALL

New to the B3 is Associated's Quadra-Symmetric suspension. The tongue-twistin' name describes a simple concept: all four suspension arms are of equal length and the front arms pivot on the same plane as the rears. The Associated team guys report excellent stability and superior rough-track handling with this new design.

NEW SLIPPER DESIGN

The B3 also features a new slipper clutch that provides more consistent action. Associated increased the median diameter of the pad so that the slipper can handle more torque with less pad pressure. This allows the slipper to better compensate for harsh bumps without sacrifice of acceleration. The spur gear now rides on a single bushing that fits directly to the input shaft of the tranny for improved concentricity.



WORK THAT BODY

Associated pulled out all the stops and commissioned a new body for the B3 and designed it for a better dirt-shedding fit. It features larger windows for better visibility (no, not so

you can see out of it, wiseguy) so you'll see it better on the track. A new decal sheet with the hip B3 logo is included.

LONG ARMS TO LAY DOWN THE LAW

The rear of the B3 sports new rear arms that are longer than those of its predecessor, along with revised rear hub carriers and adjustable anti-squat. The wheelbase is also adjustable: note the spacers between the hub and suspension arm. Although they're not shown here, all Team versions of the B3 will feature genuine MIP CVD drive shafts.



PHOTOS COURTESY OF TEAM ASSOCIATED

STEER HERE

There's lots of new stuff up front. Most notable is the king-pin/ball-stud design that positions the camber link directly above the axle's pivot point. Less apparent (but no less important) are the new 30-degree caster blocks and redesigned steering



arms for improved Ackerman. Sharp-eyed readers probably will wonder about the nub inside the new, longer suspension arm; that's one of the molded-in ball ends for an optional swaybar—very trick; no heavy steel ball ends to weigh down your suspension.

From what has been leaked to us, the new RC10B3 should retain the formidable track presence of its predecessors while it leads Team Associated and the RC10 series into a new era of driveability and friendly handling. We've heard it described as "predictably responsive," "well-balanced" and "more stable." Although nimble-fingered factory pros might not be concerned with driving ease, for those of us in the real world, it can mean the difference between an afternoon of turnbuckle torment and an A-main performance!

*Addresses are listed alphabetically in the Index of Manufacturers on page 209.

NASCAR ALL THE WAY

The photo of these two on-road beauties was sent in by Wayne Correia of Hamilton, Bermuda. The no. 37 car (rear) is a Kyosho SR-5 that runs with a Novak Racer speed control and a Trinity Midnight motor. In the foreground is Wayne's no. 29 car—a Trinity Switchblade 10 that also uses a Novak speed control but gets its power from a Peak Performance Rick's Pick II motor. Both cars have been topped off with Thunderbird bodies and customized with Slixx decals.



"Readers' Rides" is our way of recognizing the unique, innovative—and sometimes bizarre!—vehicles that our readers have created. Send a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, R/C Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. If we choose to feature your creation, you'll receive a 6-month subscription to Car Action, or an extension of your existing subscription. You'll also be eligible for the seventh annual "Readers' Rides of the Year Contest" in the fall of 1997. The winner will be awarded \$500 and an assortment of electronic R/C equipment furnished by Novak Electronics Inc. Our second and third choices will also receive an assortment of Novak electronic R/C equipment. In case we need to contact you, write your address and phone number on your letter and on the back of every photo you send. Good luck!



GREAT-LOOKING GASSER

Kevin and Gary Gruenewald of Florissant, MO, share this OFNA Ultra Worlds GT. They equipped it with a customized aluminum spoiler and bumper, a Force engine, MIP temperature gauge, Hitec servo for steering and an Airtronics XL2P radio system. They tell us it "really moves out!"

THE DREAM TEAM

The photo of this collection of cars was sent to us by Kevin Hudis of Woodland Hills, CA. The team includes an HPI F1, an HPI RS4 Audi Quattro, an OFNA Quad 4 1/10-scale Porsche 959, an Associated RC10LS Peugeot 905, a BRP Super Oval Outlaw 1/18-scale Thunderbird, a Traxxas Blue Eagle and a Traxxas Nitro Hawk. The gas cars in his collection are equipped with O.S. .12 CV "redhead" engines, and his electric cars use Novak speed controls. All his rides run with Novak receivers and Futaba servos and were custom-painted by his friend, Robert Bonner.



RALLY-READY

Gora Thorsten of Stockstadt, Germany, sent us these great action shots of his Traxxas TCP-chassis converted rally racer. Powered by a Peak Limited Edition 11-turn double motor and Sanyo 2000mAh cells, this rally rig is controlled by a KO Propo EX-1 and Novak Hammer Pro ESC. Gora hits the dirt with Losi Sprint Pattern rear tires and Wide Bodies up front. He finished the whole conversion by using the body mounts from a Traxxas Hawk 2 truck to mount a Ford RS 200 body.



READERS' rides

MICROBUS MADNESS

Aashish Dalal of San Jose, CA, sent us this photo of his VW Microbus, which he styled and built with real attention to detail. It's based on the Tamiya Mini Cooper '94 Monte Carlo chassis, and Aashish added his "trusty" Tekin 610-G speed control with 1500mAh battery pack and a Trinity Midnight stock motor. He topped it off with HPI's '63 VW bus body, which he detailed with 21 windows—like the 21-window version of the full-size "bus" from that era—a soft-top vinyl roof and blue-and-white paint job. Aashish added a European cherrywood interior along with hand-stitched white vinyl bench seats and captain's chairs up front. Even if, as Aashish says, the bus is "more show than go," it's a great-looking ride.



HOPPED-UP VIPER

Richard Dodd of Ashmore, Australia, tells us this Tamiya FWD sedan has "all hop-up options," a 16-turn motor, a Novak Racer ESC and Airtronics radio, servo and receiver. He finished off this smokin' ride with an HPI Dodge Viper Le Mans GTS-R body painted with Tamiya light blue paint.

DRAGGIN' TERROR

Gordon Petway of Bridgeport, CT, sent us this snapshot of his home-built top-fuel dragster, and he claims that it can reach speeds in the neighborhood of 90mph. It has a custom-made G-10 fiberglass and titanium chassis with a handcrafted front crossbeam/coil-spring suspension system and custom front and rear wheels. The dragster is powered by a Paris/Picco .21ci modified engine with Paris tuned pipe, and Gordon gets the power to the ground with a Kevlar belt that's linked from the 2-speed tranny to a center gear that's mounted on the titanium axle. The gearbox and all the gears were custom-machined, and the drive belt is made of a full-size blower pulley belt cut to size. A Bolink Econo Rail body tops off Gordon's creation.



MUDDY MONSTER

This custom-built "mud racer" belongs to Frank Graczyk of Eldorado, IL. Beginning with a Kyosho transmission, Frank added a Royal .12 engine with pull-starter along with a Hitec 2-channel radio with servos. He framed the ride with round and square aluminum stock and finished the car off with tires and rims from a Tamiya Super Blackfoot. Frank is so fond of running this buggy in the mud that he and some friends built a mud pit next to their track just to prove that this car is a winner in the muck!

NOVAK
ELECTRONICS, INC. RACING TEAM



TROUBLE SHOOTING

by Doug Mertes

Re-Gear the Gas Guzzler

I have a big problem! I just converted my Inferno into an Esprit GP-20, and the engine's connecting rod broke while I was running it. I replaced it, and it happened again. I'd really like to be able to run this car, preferably without buying a new engine, which is an O.S. RF-B. The engine ran fine and was really well broken in when I ran it in truck form. Any ideas?

JAMES KIM
via email

Jim, I guess that your problem isn't big but small! I suspect that when you installed the smaller car tires, you neglected to alter the gearing that came on the original Inferno. If that's the case, you probably get the engine all nice and warm and then over-rev the heck out of it. There isn't much of a load at those revs, either. Under ideal circumstances, the gearing on a gas vehicle will prevent the engine from revving too high and self-destructing.

It's also possible that you just wore out the lower end bushing with normal use and that the first rod's failure was due to wear and tear—nothing more. You may have then improperly installed the second rod, or the rod itself may have been defective, causing the second failure. There really shouldn't be any reason why you can't use the engine you have, as long as the two "grenading" rods haven't caused any permanent damage to the crank cylinder, head and cases.

To begin, completely disassemble the engine and clean all the components with mild solvent and a stiff brush. That should remove any remaining small parts and metal dust left after the mishaps. Follow with a soapy, hot-water bath using another stiff plastic brush (such as a toothbrush) to get into all the little inner nooks and crannies. Dry everything immediately with a soft cloth, and spray a little WD-40 onto every surface to protect against rust and oxidation. Inspect the cylinder, piston and head for gouges, scratches, nicks and unusual wear patterns. It's possible that debris from the rod failure may have worked its way into the space between the piston and cylinder wall; this would necessitate the replacement of both of them. If the damage is that bad, you may want to compare the total cost of the new parts with the price of a new engine. If you elect to do your own repairs, check that all of the case parts tighten well; any air gap will reduce engine performance and can cause it to seize because the mixture will be too lean.



If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at Radio Control Car Action, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to Troubleshooting, Radio Control Car Action, 100 East Ridge, Ridgefield CT 06877-4606. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

Washer to the Rescue

My Tamiya F-150 4WD truck is a blast to drive, but it seems to have one problem. Twice, after several hours of use and a few sharp turns, the left rear suspension link came off, and I had to look for the dogbone in the dirt. I think I've figured out why. The step screw that holds the upper link to the damper stay unscrews itself when the arm moves up and down, and eventually, the arm falls off. I read the "Thrash Test" that you guys ran on this truck, and you seemed to like it a lot. Did you ever have this problem, or do you know how I can fix it?

JARED LEIGHTY
Port Republic, MD

Jared, isn't it amazing how Tamiya has been able to take one basic suspension design and use it in so many vehicles?

The same tub, tranny cases, hub carriers, steering spindles and many other components as came on your nifty truck have been used in off-road buggies like the

Dirt Thrasher and killer 4WD touring cars like the TA01 and TA02. So if what you've encountered was a true design flaw, it would have been

called to my attention before. Since that isn't the case, I was really intrigued by the possible causes of your dilemma.

I retired to my secret underground laboratory with one of my TA02 vehicles (I've also owned a TA01) and spent an hour or so flexing the suspension arms to figure out how the screw could unscrew itself. I couldn't duplicate your feat, so I called friends who had owned and raced TA02-based vehicles, hoping for an explanation. One suggested that the screw that holds the upper link to the damper stay had simply been threaded in too tightly at first and that perhaps some impact had caused the threaded hole to enlarge to the point at which the screw was never really tight any more; after a while, it simply fell out. Another thought that the large truck wheels and tires could cause enough vibration to make the screw back out. Neither of those sounded correct, however, so I dug out my assembly manual. That's when I came up with the solution.

The manual indicates there should be a small 3mm washer between the head of the step screw and the damper stay before being secured to the upper link. Without this washer, the screw head can rub against the damper stay and unscrew itself at least enough to allow some flexing in the suspension where it's highly stressed. I suggest that you buy another upper link. You may be able to find one by asking around at a large parking-lot race; the links come on a couple of parts trees and don't fail very often. Replace the one that's come loose twice already. Be sure to use the washer under the screw head to prevent this from happening again!





M-Chassis Secrets Revealed

SINCE THEIR introduction in 1994, Tamiya's* M-chassis cars have become one of the fastest-growing segments of the parking-lot racing scene. Simple, durable, quick and undeniably cute, Minis seem an obvious choice for newcomers who are choosing their first race vehicles. As these neophytes quickly discover, however, things are not always as simple as they seem. With their short wheelbase and front-wheel drive, these cars take a little time to set up properly; otherwise, they end up twitchy, slow and unpredictable. To make things easier and less confusing, I've gathered a few tips that should prove valuable to both newbies and experienced veterans. I'm sure that if you look at the way your Mini handles and use some of these tips, you'll find it easier to streak to the front of the asphalt pack.



STEERING PRECISION

Having tightened the suspension springs and damping, the next step is to toughen the steering linkage. The plastic parts that come with the kit are not only sloppy, but they're also fragile. I've seen more than one Mini driver have his day end earlier than expected when one of the upper linkage stems broke. Tamiya's upgraded metal steering linkage still has a lot of slop, and that's pretty tough to cure while staying within the TCS rules. On the other hand, the two links are metal, so they're certainly harder to split or crack

SUSPENSION SHORTCOMINGS

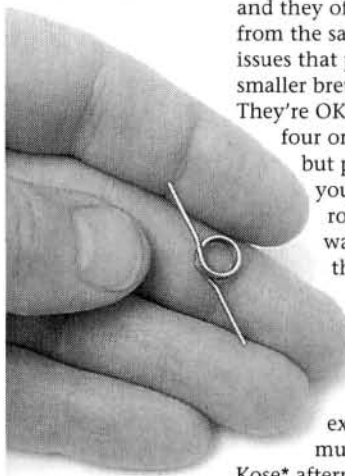
The suspension setup on all M-chassis cars is identical, regardless of whether they're front- or rear-wheel drive. Although the mid-sections and bulkheads may be of different lengths, the arms, uprights, spindles and drive systems are all the same, and they share the same problem—those little springs that fit over the hinge pins and are captured by the arm and the gear-case housing. These look like oversize motor brush springs, and they often suffer from the same fatigue issues that plague their smaller brethren.

They're OK for the first four or five runs, but pretty soon, your car starts to roll, tip and wander through the turns as they soften with use. Although there are excellent (and much stiffer)

springs that solve the problem, these aren't legal for Tamiya Championship Series (TCS) Mini-class competition—a guideline that's used by many local race series.

The best way to resolve the issue yet remain legal is to disassemble the front and rear suspension then remove the springs and tweak them with two pairs of needle-nose pliers until the spring's arms point at 180 degrees—exactly opposite from each other. Although this doesn't increase spring pressure, it preloads the spring so it will do a much better job of keeping the chassis level through hard turns. Until Tamiya comes out with a tougher set of springs, this will have to do. If you use no other tip in this article on your Mini, at least try this one; you'll be amazed at the change in handling and the turning precision that results.

Use two pairs of needle-nose pliers to tweak your suspension springs until the arms point outward at 180 degrees. You'll be amazed at the improved handling!



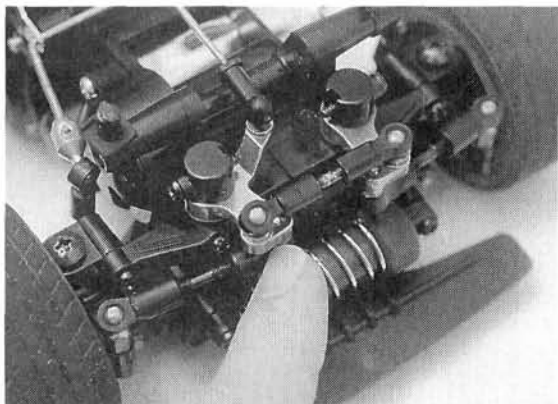
Kose* aftermarket

DAMPING DETAILS

Most Mini folks are confused by the suspension arrangement of these cars. They see only one shock absorber at each end, move the suspension arms around with the car off the ground and find that compressing one side makes the other side extend. The logical conclusion is that some bizarre madman is responsible for this unique design! Actually, all it takes is a little work to balance the resistance of the suspension-arm springs, the shock damper spring and the damping action to get everything working perfectly. One shock works fine, whether it's a kit-supplied oil-less shock, or one of Tamiya's excellent, plastic-body CVA units.

The kit parts will provide some damping action if you fill the shock cylinder with heavy automotive axle grease (don't use silicone; it will leak out). I tried some red Kendall-brand grease in mine (the local garage was happy to give me a tablespoon or so when I told

them what it was for) and found that the small head on the piston shaft was sufficiently slowed by being squished back and forth through the grease. On my Alpine, I've used a pair of blue-bodied oil-filled shocks from one of Tamiya's older TA-01 4WD cars set up with 80WT fluid and two-hole pistons. In either case, the real secret is to take your time setting spring preload on the shock absorber. Note that once you've cranked the springs as suggested, if there's no preload on the shocks, there's no compression/extension relationship between the opposite sides of the suspension. Insert a few thin spring preload spacers one at a time, and compress one side of the suspension each time you put on another spacer. Pretty soon, you'll see that the compression/extension monster has returned. Don't panic! Remove a spacer or two, and you'll be just where you want to be. Under no circumstances should you



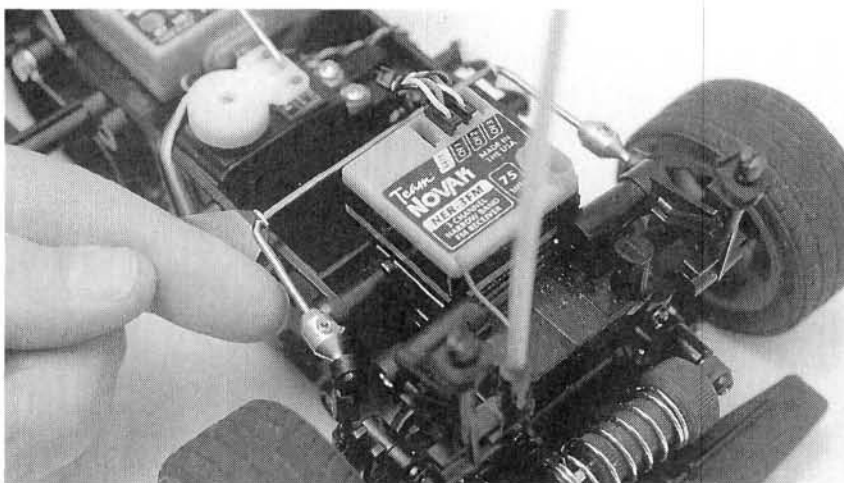
These upgrade, metal steering-linkage parts are still fairly sloppy, but they won't break when you've been hit by an enthusiastic competitor.

than the original plastic pieces. I've run the ones on my Mini for two seasons without a single failure, and I've taken some pretty hard whacks!

I also strongly urge you to secure the drive pins and kingpins. There's a lot of general looseness in the fit of these parts on Minis; sometimes, the drive pins fall out of the axles just

when you're trying to replace the wheel (this usually happens immediately before your heat). Place just a dab of Shoe-Goo, Goop or other RTV material on the pins as you insert them in the axles (don't use too much; it will bind up the bearings or bushings), and immediately place the hex drives on top of them to secure the pins

in their holes. It's easy to push the pins out when you need to do regular maintenance, but they'll never drop out unexpectedly. The same goes for the kingpins that hold the steering spindles in the C-carriers. Many thread-locking compounds have some type of CA mixed in to provide rapid locking action, but this stuff frequently attacks the plastic used in Tamiya kits. A little dab of Shoe-Goo on the threads of each kingpin will hold them in place for an entire season and will prevent them from falling out at inopportune moments.



attempt to run without damping springs installed because this provides so little resistance to bumps that the chassis will drag on the ground.

As regular readers of this column know, I'm a big believer in the use of swaybars on asphalt cars, and the Mini is no exception. Tamiya makes an outstanding set of front and rear swaybars, and I recommend them highly. The only change I would suggest is to replace the thin bar with a thicker one of the same diameter as the thick bar, using

some piano wire from the hobby shop. It's also a good idea to make sure that the bars themselves aren't tweaked. Check them from time to time by laying them on a flat surface, and bend them flat again if necessary. Finally, measure the length of the swaybar levers that are attached to each suspension arm. Although the leg length itself isn't critical, the length should be the same on each side; if it isn't, the car will turn more easily in one direction than the other.

Tamiya's excellent swaybar kit really reduces chassis sway. Preload the damping springs very carefully; compressing one side of the suspension should not extend the opposite side!



Keeping Up To Speed

Quality and maintaining state-of-the-art products have been a trademark of Novak Electronics since the beginning. So it's no surprise that Novak engineers found a way to improve upon two of their top speed controls — The **Cyclone** and **Tempest**, now called the **Tempest Max**.

Both speed controls received a boost in their performance capabilities, which racers will find beneficial. One modification common to both ESCs is the use of the powerful **HYPERFET III TRANSISTORS**, which drop the **On-Resistance** to an all-time low of **0.00067 ohms** and can crank out **480 amps** of **Drive Current Rating**. Expect a smoother, faster and more efficient ride with these changes.

Other updates made to the Cyclone are revisions to each profile, including the **Drag Brake** option in Profile 2.

Racers who find the Tempest better suited to their style will be pleased with the updates made to the Tempest Max. Added features include a built-in **Schottky Diode**, built-in **Brake Light Circuitry** and a tougher **3.0 amp, 5.7 volt BEC** with overload protection.

One thing racers will appreciate that remains the same on both the Cyclone and Tempest Max is the price — both updated ESCs can be purchased without an increase in cost.

The Cyclone recently blew past competitors at the 1997 IFMAR 2WD Off-Road World Championships in August, bringing Team Novak its 17th World Championship title.

NOVAK ELECTRONICS, INC.
18910 Teller Avenue, Irvine, CA 92612
• (714) 833-8873 •

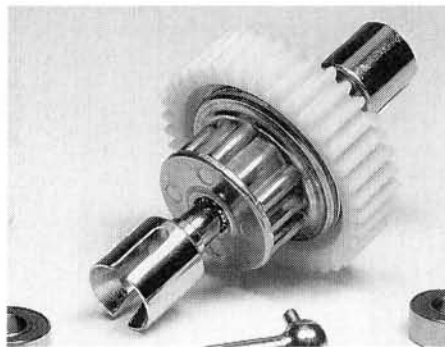
Advertisement

TS# 4



DIFFERENTIAL DECISIONS

Should you use the kit's gear diff or upgrade to Tamiya's Manta Ray/4WD ball diff? Each has its advantages, so it really depends on the way your car is set up, the way you drive and

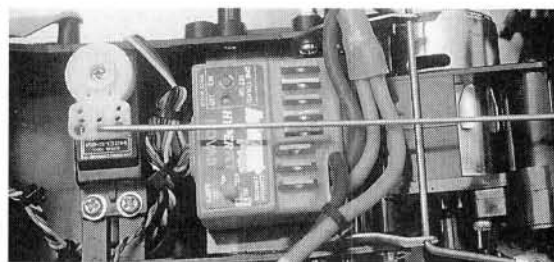


Gear diff or ball diff? Each has its advantages, but you'll find that a ball diff like this one is an asset if the rules permit you to use a more powerful open-endbell motor.

the rules of your race series. The gear differential provides superb diff action; in fact, it can be almost too free and easy. It's not unusual to hear these gear diffs buzzing as the inside wheel is picked up in a tight turn because they transfer power to the wheel with the least resistance. Gear diffs work best when the race rules specify the use of a closed-endbell Mabuchi-type motor.

Those motors don't require a slipping diff, and you can adjust the diff action by loading the diff case with thicker grease to slow things down. When momentum and efficiency are your targets, you can't beat a gear diff.

On the other hand, if the series rules allow you to use an open-endbell-type stock motor, you'll find real advantages in a ball diff. It can be set up with a little bit of slip so that the car will take off straight from a standing start, instead of veering wildly to one side at the tone. That veering is caused by torque action, as first one front wheel and then the other is overloaded by the motor's power. The diff action can also be adjusted very precisely; this is a terrific tuning aid when you can afford to throw away some horsepower in the name of acceleration and control. Given the power of today's stock motors, I wouldn't run a Mini with a stock motor unless it was equipped with a ball diff.



Play around with servo and ESC placement to get optimum weight distribution. This setup yields optimum steering-linkage orientation and uses only stock pieces.

WEIGHT DISTRIBUTION

I'll assume that you've already committed to either front-wheel or rear-wheel drive. Each has its own merits, but ultimately, you'll set your car up in the way that best suits your driving style and makes you the most comfortable. Front-wheel-drive cars tend to push a bit in the turns, although much of that can be tuned out with a little work. The rear drivers have a nasty hooking habit so that the rear end wants to swap places with the steering end in tight turns, especially under braking. Both problems are closely related to weight distribution.

Front-wheel-drive M-chassis cars should have their electronics evenly distributed on each side. Many builders just dump the ESC in the chassis tub opposite the servo and figure that that's the only way things will work. The result is often a chassis that's heavier on one side and will turn more easily in one direction than the other. I've used the stock servo mounts and a Futaba* S132H servo mounted crosswise in the chassis to provide better weight distribution as well as steering servo linkage that runs perpendicular to each pivot point (for equal steering to the left and right). I'd prefer to have the ESC mounted below and behind the servo rather than on top of the battery pack, but the Novak* Hammer Pro's setup button got in the way. It's higher than I'd like, but at least the power and motor wires are as short as they can be. I mounted the receiver right between the rear body posts, far away from possible interference from the motor, servo and power wires. Ideally, the servo, ESC and receiver should all be mounted along the chassis' centerline, but you can find the optimum balance point by sitting the fully loaded chassis on a straightedge (like a metal yardstick) to see where the center of the car's weight lies. A little time spent messing around here can pay big dividends on the track.

Note the difference in size of the standard Mini tires, HPI's* aftermarket wheels and tires and Tamiya's M60 series radials. Taller tires will give you higher top speed down the straights.



TIRES AND GEARING

When these cars were released, the only tires we had to work with were the hard, stock, treaded tires that came with the Mini. With the release of the Volkswagen Bug and Renault Alpine, however, Tamiya included larger M60 series radials that were appreciably taller than their Mini counterparts. These larger tires meant lower effective gearing (higher rollout) that resulted in a higher top speed on tracks that had space for the cars to really get up a head of steam. Because the newer Miata and Honda S800 body styles accommodate these taller tires (the Mini body does not), it may pay to re-tire and re-body your Mini if you run on longer tracks.

Also relatively new to this class are shaped inserts that force the tire tread to conform to a consistent shape, even when the car is trying to deform the tire in a hard, fast turn. The shaped inserts are preferred to foam because they more effectively maintain the size of the tire's contact patch. This results in superior cornering and increased tire life. Such a deal! Even though they come in only one density—the equivalent of the sedan-series hard inserts—they can be used in both slicks and radial (treaded) tires.

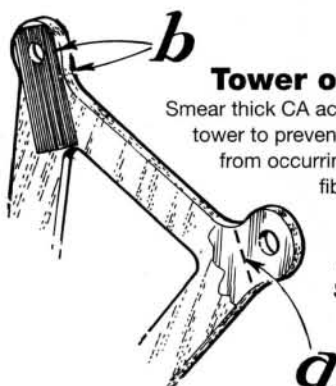
It's often said that small details separate the winners from the other cars. None of these tips involve the use of illegal parts, faster motors and expensive batteries. All of them, however, will make your Mini or other M-chassis car faster, smoother, more efficient and easier to drive. With those improvements and little practice, you can go a long way!

*Addresses are listed alphabetically in the Index of Manufacturers on page 209.



PIT TIPS

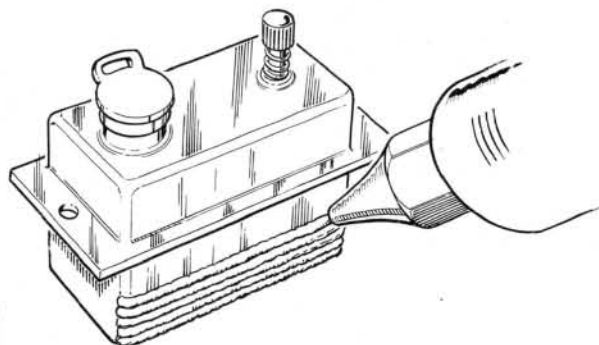
by Jim Newman



Tower of Strength

Smear thick CA across the shock-mount tower to prevent the cracks shown (a) from occurring. A strip of carbon-fiber ribbon (b) glued onto each side of the mount adds tremendous strength.

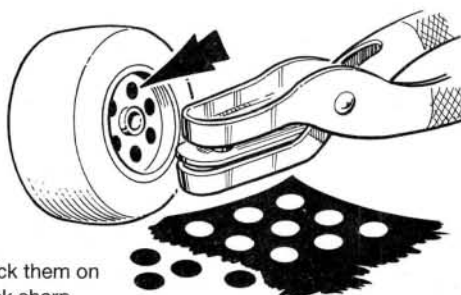
SCOTT HAYNES,
Portland, OR



Hot Patch

Louie patched a split tank with a "band-aid" made of hot glue from a glue gun.

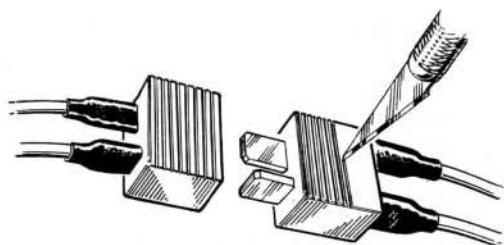
LOUIE DOUNIS, Flushing, NY



His Holey-ness

Punch disks out of black, self-adhesive film or paper, then stick them on those wheels to make them look sharp.

GLENN CASTILLO, Honolulu, HI



Groovy

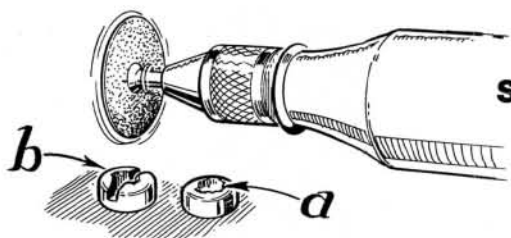
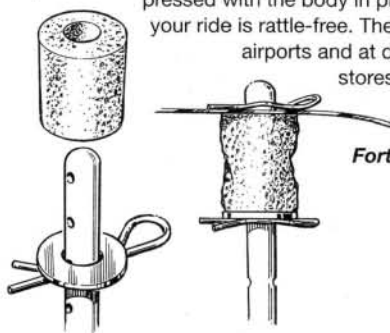
Connectors are slippery when you try to pull them apart, but grooves scratched across them with a knife will give you something to grip.

MARK KUFAHL, Westlake, OH

Cushy Job

Drill a hole through sponge earplugs, then slip them over the body mounts. Adjust them so they are lightly compressed with the body in place; you will find that your ride is rattle-free. The plugs are available at airports and at discount department stores' sporting goods departments.

MARK COMBS,
Fort Dix, NJ



Screw Saver

Rescue stripped Phillips-head screws (a) by grinding a slot across the top (b). You can then use a straight-blade screwdriver on them.

KEVIN GREEN, Oklahoma City, OK

Radio Control Car Action will give a one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one, nor can we return unused material.



by George M. Gonzalez

Drivers Wanted

IF YOU'VE EVER seen or competed in a concours event, you probably noticed that the winning car or truck is almost always equipped with a completely detailed interior. Beautiful paint jobs, custom graphics, detailed engine compartments and working illumination are all ways to make an R/C car or truck look more authentic, but installing a detailed interior is by far the most effective way to add scale realism to any such project.

Parma*, Tamiya* and Dahms* (to name a few) offer detailed car interiors that are easy to add to your vehicle. This month, I'll show you how to create a concours-winning off-road buggy by installing one of Parma's Universal Interiors (part no. 10203) and using simple painting techniques.



The Protoform Ripper X 'CR' body looks great with my yellow and purple "team colors." The detailed interior makes this car stand out.

CREATURE FEATURES

The Parma Universal Interior, as the name implies, is a complete car interior that includes a driver's cockpit, high-back bucket seat, dashboard and a complete driver figure. A separate parts tree contains the driver's helmet, steering wheel and gear shift. This interior was designed to

work with just about any R/C body—from off-road buggies to monster trucks. It must be cut to size, but the plastic is very soft, so cutting it is fairly easy. Mounting the



Right: here's a close-up of the driver-equipped Protoform Ripper X 'CR' body; this guy's cool! For that extra touch of detail, the window was removed and protective netting made of Pactra trim tape was installed. This buggy is ready for concours judging.



HPI's* Integra Type R body for 190mm touring-car chassis (part no. 7043) includes all the refinements and subtle design changes that were made in '97. The body comes with a decal sheet made of new, stronger and more flexible vinyl and includes the front grill, front and rear illumination and all window moldings. Two rear wings come with every body—one very subtle wing and one that's big and bad to the bone.



HPI's '97 Corvette

body (7039) for 200mm-wide touring cars was designed to give these chassis that distinctive, American muscle-car look. HPI did a fine job of capturing the full-scale car's sleek

styling and low-profile stance. Included with the body are a two-piece rear wing and a complete decal set. It complements the HPI Nitro RS4 perfectly.



COOL NEW PRODUCTS



interior is also very straightforward, thanks to the included Velcro®-brand fasteners.

CHOOSE THE RIGHT PAINT

I decided to install this interior in my Team Losi® Double-X, which is equipped with a Protoform® Ripper X 'CR' body. The cars and trucks that win concours events typically have simple paint schemes. Cars and trucks painted with checks, splashes and multicolored graphics may look impressive, but they hardly ever win concours events. For the most part, scale realism is what impresses concours judges. The body shown here was painted with Pactra® fluorescent Racing Yellow and Grape Pearl; the Pactra Racing Red paint stripes help separate the main colors. The body was also given a fluorescent-white backing coat.

The Parma interior is



The Parma Universal Interior before it was detailed. Note the separate parts tree that contains the driver's helmet, the stick shift and the steering wheel. The kit even includes the Velcro®-brand fastener and screws to put together the helmet halves.

molded of thin ABS plastic—not Lexan. For this reason, I used Testors' static-model paints. You can paint the driver's suit and helmet to complement the car. I chose paints that I felt matched my team colors well.

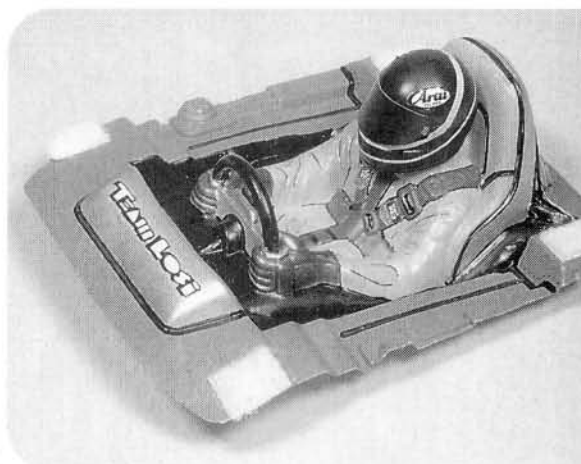
I used Testors' flat yellow on the driver's suit, flat red on the safety belts and gloss purple on the helmet and gloves. I

used flat black, gray and silver paints on the interior and flat sky blue on the seat cushion. All the paints were in bottles, except for the Testors' flat black and silver spray paints that I used to coat the interior before I detailed the cockpit and driver. I used Testors' Shredproof paintbrushes (kit no. 8703—one thin and one medium) to paint the interiors; for the final detailing, I used a Trinity® Ex-Pen and Pactra's trim tape.

WRAPPING IT UP

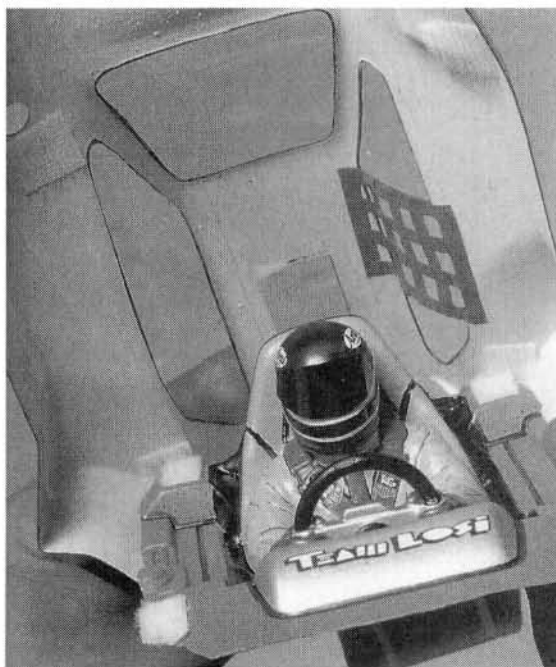
I can't think of a better way to enhance the looks of an R/C car than by adding a realistic-looking interior with driver figure. Now, each time your buggy "skies" a tabletop jump, the driver will have a death grip on the wheel; that's excitement! Remember: racing isn't just about going fast; it's about looking good in the process. I hope you liked this edition of "Concours Corner." Until next time

**Addresses are listed alphabetically in the Index of Manufacturers on page 209. ■*



The painted and detailed interior before it was mounted.

Take a look at how the interior is mounted to the body—four strips of Velcro®, and that's it!



CONCOURS COMPETITION TIPS

- Because it will seldom be raced, paint a body specifically for concours competition. Choose a simple paint scheme. Concours judges are usually suckers for scale-looking paint jobs; multicolored paint schemes with fancy graphics are impressive but not very realistic.
- Apply decals sparingly. You don't want to cover up your cool paint job.
- Use real racing-sponsor logos, and be sure that they are correct for your car. For instance, don't apply Miller Genuine Draft decals to an off-road buggy. There is no such car.
- Always have a new set of tires and wheels just for concours competition, and be sure they're squeaky clean. Lemon Pledge really puts a shine on tires and wheels, and it smells good, too.
- On off-road buggies, clean all suspension components with a toothbrush and Armor All. Every screw, nut and suspension part should be in better-than-new condition—important on open-wheel vehicles.
- Be sure that all of your electronics are mounted neatly and that the car is operational. Some concours competitions require that the car be raced.
- Use an on-board antenna for all on-road applications. For the most part, whip antennas are OK on off-road vehicles.
- Be sure to trim your car's body mounts to size. Nothing looks worse than long posts sticking out.

PRODUCT WATCH

Need to know what's new? What works well and what doesn't? This section is devoted to objective reviews of all R/C car accessory items. From gears and wrenches to motor brushes and shock springs; if you can use it with your R/C vehicle, you'll find it critiqued on these pages.



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HPI
Diablo
Body



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Wheels

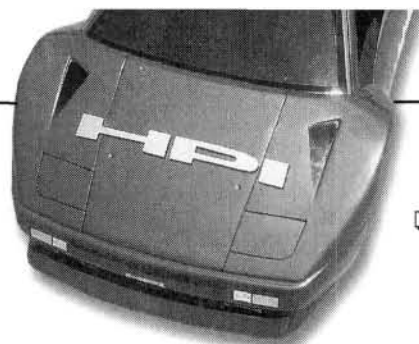
HPI Diablo Body MODELING LAMBORGHINI'S SPEEDY DEVIL

SINCE THE RELEASE of its successful RS4, HPI* has carved itself a nice, secure niche in the 1/10-scale R/C world. And that's just the start of the story. With its roots originally in high-quality accessories, HPI has just cranked out a barrage of new bodies to fit the latest addition to its stable: the Nitro RS4 chassis. Because the popularity of touring cars hinges largely on R/C'ers attraction to realism, HPI has given the public what it craves—awesome detail and great scale looks. Want proof? Take a look at the new Diablo VT Lamborghini (part no. 7099). It's smooth, low and ready to go!

The Diablo VT has some serious detail working for it. The 200mm-wide shell has been tailored to fit the RS4 electric and nitro models with the wide-chassis configuration. This body will also fit most of the popular touring cars and superspeedway chassis, such as the 10LSS. (Note: the transmission height of front-wheel-drive cars may cause clearance problems.)

A ton of detail has been molded into the body. Dimples on the hood and rear deck make easy to drill mounting holes. The holes were designed for the RS4—no more wheels that don't match up with the wheel wells. (I hate it when that happens.) A very stylish rear spoiler is also included.

But wait; there's more! HPI provides a full-color decal sheet (9137) that includes its logos, body accents and running and taillights on stretchy vinyl that is easy to apply, especially to complex, curved body parts. If you want to use a decal-application solution,



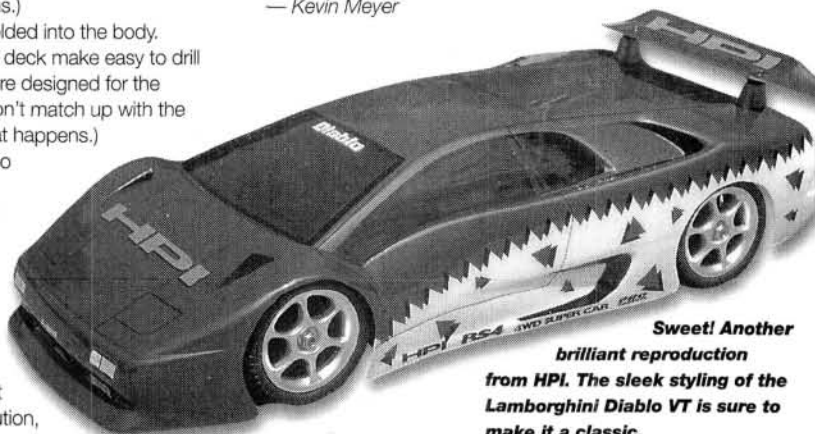
Left: nicely detailed front gives a scale appearance to this hot-looking body. Note the dimples for the body-post locations. They help to make mounting this shell a cinch!

pre-mixed aftermarket products work best. Homemade mixes such as watered-down window cleaner or warm, soapy water seem to attack the decals' adhesive and make it less sticky; so take care, and use these fluids sparingly.

Another helpful feature of the new shells is the protective body film; this eliminates the hassles of paint overspray on the outside of the body. When you've finished painting, simply peel off the protective film and apply the decals.

The folks at HPI have built a solid platform with their touring-car chassis; the topper is the great-looking shells they've released. The Diablo VT is one very classy body that is sure to please R/C'ers at all levels. Super detail and styling combined with a cool vinyl decal sheet make this an excellent deal! This complete package has everything you'll need to turn your basic pavement pounder into a sexy Italian exotic.

— Kevin Meyer



Sweet! Another brilliant reproduction from HPI. The sleek styling of the Lamborghini Diablo VT is sure to make it a classic.



Left: rear-deck louvers really do add to the realism. Bumper to bumper, this car has loads of detail! Center: the decal sheet for the Diablo VT includes window molding and trick-looking body accents. Right: the new shell comes with this stylish spoiler to add downforce and more rear-end traction.

PHOTOS BY KEVIN MEYER

NOVAK Pit Wizard

LOOK MA! NO PC!

If you've spent any time at an R/C racetrack lately, you've no doubt seen more than a few racers sporting Novak's* ultra-tunable Cyclone speed control. With its three, user-selectable performance "profiles," the Cyclone is as formidable in a 1/12-scale car as it is in an off-road racing truck. Each of the Cyclone's profiles is actually a factory-installed set of performance parameters created by Novak's team of racers and engineers. Each program specifies values for such features as deadband, minimum drive and switching frequency. While the three programs offer a high degree of versatility, hardcore racers always seem to want more adjustability. Tweak, tweak, tweak!

JACK ME IN!

Knowing this, Novak broke new ground in speed-control technology by equipping the Cyclone with a unique PC interface port. This allows racers with Novak's Data-Link and Profile software to use their PCs to alter all of the Cyclone's performance parameters to suit their driving styles and track conditions. The parameters include the ones already discussed and more: neutral setting, full forward, full brake and drag brake can both be adjusted. (For the full scoop on what all these features can do for you, see our review of the Cyclone in the February '97 issue.) Unfortunately, to make their adjustments, racers had to wait until they got home or lug a cumbersome (and expensive) laptop to the track. That's an impressive site on the pit bench, but not the most practical solution.

This brings us to the subject of our "Product Watch"—the Pit Wizard. Like a PC, the "Wiz" can access all the Cyclone's features, but you certainly don't have to be a candidate for the "World's Strongest Man" title to carry it around. This slim, sturdy, hand-held programmer is just about the size of a flip-phone. It looks simple, too; there are just five buttons and an LCD display on the front. How hard can it be to use? Then again, my VCR is still flashing 12 o'clock, so we'll see.

USING THE PIT WIZARD

To get the Pit Wizard "online," you need only add four AA batteries. You'll need a small Phillips-head

screwdriver to open the case, and I recommend that you use a good set of alkaline cells; save the Ni-Cds for your transmitter. After that, you're ready for action.



Although the data created by the Pit Wizard will become the Cyclone's "hidden" fourth profile, a set of numbers is



needed as a starting point. In addition, to properly use the new data, the Wiz needs to know the finer points of your transmitter's setup. To achieve this, the information the Cyclone "learned" during its one-touch setup procedure is uploaded to the Pit Wizard. Here's how it works:

- Plug the Wiz into the Cyclone via its D-Link harness (no-brainer; it only goes in one way). The Cyclone must be connected to a charged pack and to a receiver.
- Turn on the Pit Wizard, radio system and transmitter, and press the Wiz's "mode" button to select "Upload Data."
- Hit Enter, and the Wiz sucks up all the Cyclone's "knowledge." When the screen reads "Done" (it takes about a second), the Pit Wizard has memorized the profile the Cyclone was set up with as a starting point for your new, custom profile. In addition, the Wiz has also learned your transmitter trigger's neutral, brake and full-forward positions. To ensure maximum performance from the Cyclone, Novak specifies a certain minimum value for available throw, and the Pit Wizard will verify whether or not you have what you need. Once you have confirmed your trigger setting (or have made the correct adjustments to your transmitter), you can begin to create your new program.

CREATING A CUSTOM PROFILE

With the uploaded data in place, unplug the Pit Wizard from the car, and you can kick back in your chair and tune your ESC George Jetson-style. Just use the mode key to cycle to the Edit Profile menu and hit Enter. Now use the "up" and "down" keys to cycle through each of the 10 adjustable performance parameters: neutral, full throttle, full brake, deadband, drive frequency, minimum drive, brake frequency, drag-brake value, drag-brake toggle, and drag-brake frequency. When you get to the function you wish to edit, just press Enter, and the value will pop up. Use the "up" and "down" keys to increase or decrease this number, then click Enter again to lock it in. When you've set the profile's parameters, the settings can be stored. You can store as many as 10 profiles in the Pit Wizard, but it does not have a function for naming them. (My advice? Write your profiles on a piece of ... gasp ... paper).

LOAD IT UP!

No matter how perfectly you tweaked your personal performance profile, it won't do your car a bit of good until it's transferred to the Cyclone. This procedure is precisely the same as the steps used to upload the information you began with, but the "Mode" button is used to select "Download Data." With a click of the Enter key, you're ready to rock! Your new profile is in place as soon as you download; there's no need to go through a new one-touch setup procedure.

(Continued on page 66.)

PRODUCT WATCH

Novak Pit Wizard

(Continued from page 62.)

THE REAL WORLD

I've been using a Cyclone in my Losi* XX-4 this season, and although I've been happy with the performance of its Profile no. 1, to test the Pit Wizard's abilities, I thought I'd see whether I could tailor the Cyclone even more to my driving style.

My first change was to increase the brake's PWM frequency from 3.90KHz to 7.80KHz. This gives the brakes a more progressive feel. I like to drive using brakes, and this change made it easier to modulate the braking force. I like to be able to apply a little brakes for some turns yet retain the ability to "lock 'em up" for those emergency situations. In the future, I may even increase the brake frequency further, but I definitely noticed I have more brake control after making this change.

Next, I raised the Minimum Drive value from 6.5 percent of full throttle to 10 percent. This gets the car up and moving a little more quickly. With the added traction and acceleration of the XX-4's 4WD system, you really don't need to worry about spinning out in low-grip situations. This change allows the car to come off the turns a little harder.

Finally, I reduced the deadband from 9 percent to 5 percent. I use a new Futaba* 3PJ transmitter that has a very "tight" throttle trigger—there's little if any slop—so the larger deadband isn't needed. If your transmitter trigger is somewhat worn, you want a larger deadband to avoid braking accidentally when the trigger is in the neutral position. As a side benefit, less deadband also allows the Cyclone to engage forward drive with less trigger movement—faster starts, baby!

FINAL THOUGHTS

My instincts told me that using the Pit Wizard would be a foray into some arcane science, but nothing could be further from the truth. This magic box is about as tricky to operate as a microwave. Well, maybe that's a bad analogy; using the Pit Wizard is easy. This is due in no small part to Novak's excellent instruction manual. Its clarity and logic is downright Spock-ish. I applaud all manufacturers who take the time to make their products easier to use, but Novak has gone over the top in this case. With the Pit Wizard's intuitive software design and comprehensive yet concise instructions, you should have absolutely no problem operating this little marvel of science.

—Frank Masi

RPM Sedan Wheels

SHINY SEDAN SPINNERS

EVEN WITH the large selection of R/C kits on the market, it's not unusual to see duplicate vehicles and paint schemes at races. So how do you differentiate your car?

Here's an easy and inexpensive way to make it stand out from the crowd—new wheels! Wheels can change the appearance of your vehicle; they're easy to install, and their price is very reasonable. RPM*, the company that produces all those cool parts and accessories for off-road buggies and trucks, has just released a series of six new wheel designs for touring cars. Believe me, RPM has come up with imaginative wheel patterns that range from slightly conservative to pretty wild.

The company used a new method to bond the chrome material to the wheel; it's a real chrome finish, not silver, and it gives them a very expensive look. The area where you'll glue wheels and tires together is chrome-free, so you'll have no adhesion problem—very nice!

Although it looks great, the chrome material is susceptible to being scratched and chipped. If you plan to run your vehicle in competition, you may want to use RPM's white wheels instead. For their asking price, you can afford to buy two sets—one for show and one for go!

Check out the six patterns offered in both popular and way-out wheel designs (someone's imagination has worked overtime). All the wheels are available in both chrome and dyeable white wheels and in standard and super-narrow widths to fit HPI, Tamiya and Kyosho sedans and most

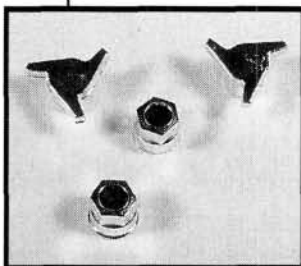


Above: add a set of these beauties to your vehicle, and watch those heads turn. This is the innovative "sunburst" pattern (8079). Top: to ensure better adhesion between the wheel and the rubber, the tire-bonding area on the rim is free of chrome finish.

cars and trucks with 8-32 or 4mm threaded axles. RPM also offers special dress-up wheel nuts and knock-offs to hide those axles and give a really finished appearance.

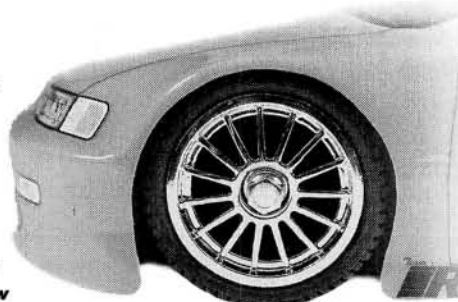
The wheels are extremely durable and very realistic. If you want a unique look, or if you just need some extra wheels for your sedan, RPM has the trick stuff. The chrome look is back, in a big way! Whether it's chrome or white you have two widths and six styles to choose from; and don't forget those dress-up accessories. Hey, these wheels could be just the clincher you need to win that concours contest!

—Kevin Meyer



Chrome to the max! The wheel nut and knock-off accessories really complete that cool, California custom styling (8081 gold and 8082 chrome).

One of my faves is the "Invader" (part no. 8084), shown here with the chrome-wheel-nut dress-up package. The special chrome-bonding process used by RPM produces some dazzling results on the company's new wheel designs.



*Addresses are listed alphabetically in the Index of Manufacturers on page 209. ■

B2

TEAM ASSOCIATED

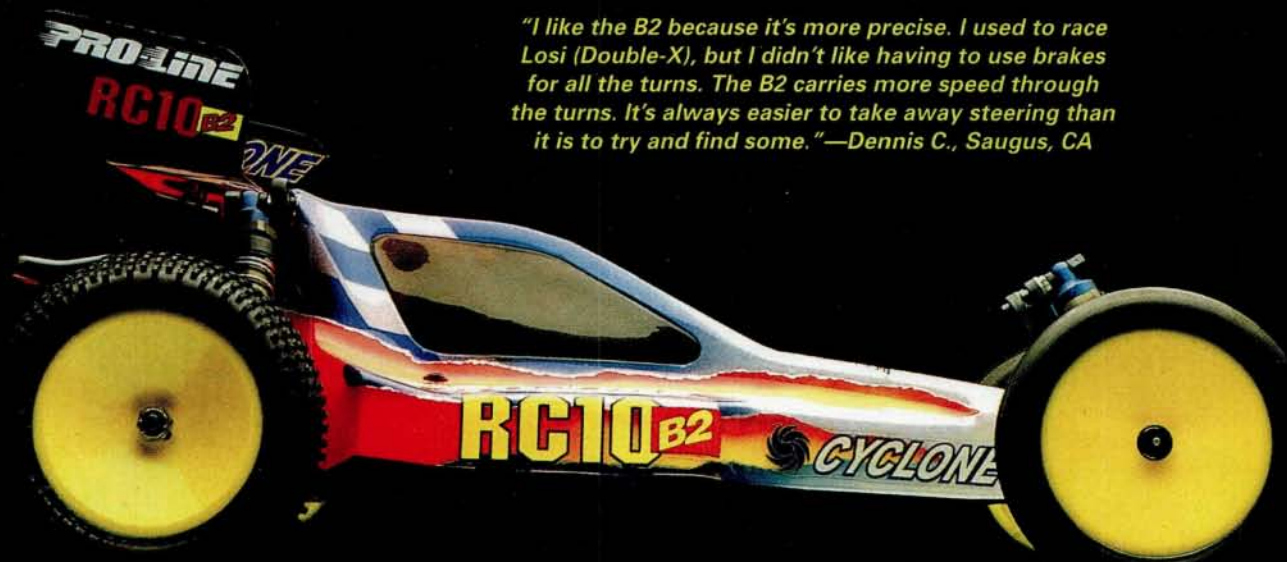
"I race a B2 because I've always owned Associated. Losi guys are always saying that B2s don't handle bumps, but it's just setup. If you work on your setup, you can make your B2 awesome on rough tracks."

—Rick N.,
Springfield, MA



IF YOU WANT TO WIN in 2WD off-road, you have a simple choice to make—Losi's* Double-X 'CR' or Associated's* RC10B2. These are, without a doubt, the fastest cars you can buy; and every weekend at races here and around the world, it's Losi versus Associated—winner take all. Owners of these brands are often fiercely loyal—it's like a "Ford vs. Chevy" thing—and, if given the opportunity, they'll gladly tell you why Losi is better than Associated or vice versa. Is one buggy better than the

"I like the B2 because it's more precise. I used to race Losi (Double-X), but I didn't like having to use brakes for all the turns. The B2 carries more speed through the turns. It's always easier to take away steering than it is to try and find some."—Dennis C., Saugus, CA



Battle of the ba

S

'CR'

TEAM LOSI

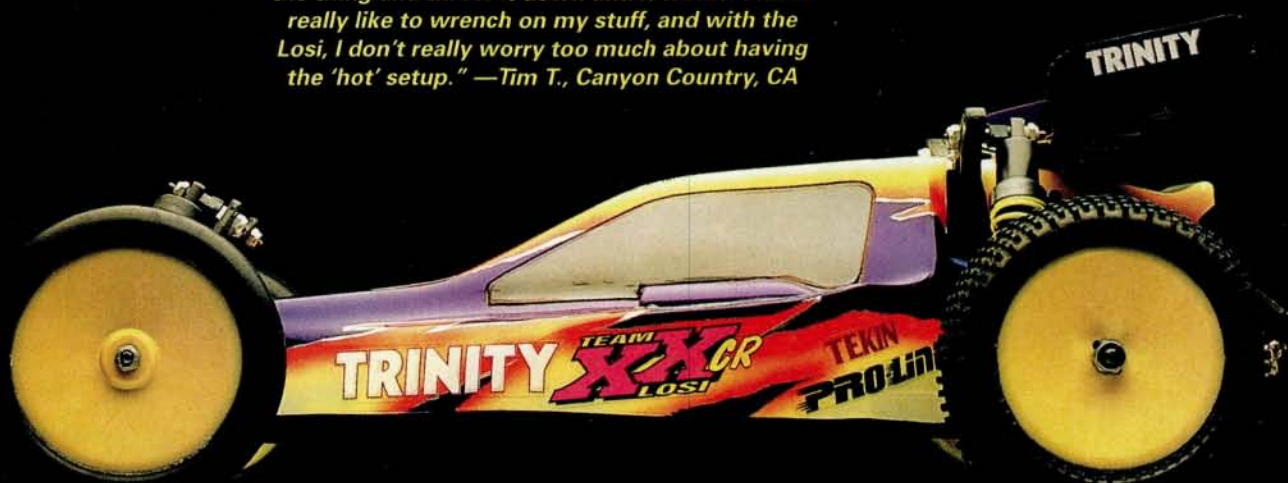


"I bought a B2 when they first came out. I loved the way it steered, but I had trouble going through some of the bumps. I tried a Double-X 'CR' and it felt slow, but my lap times were actually faster."

—Sean C.,
Bridgeport, CT

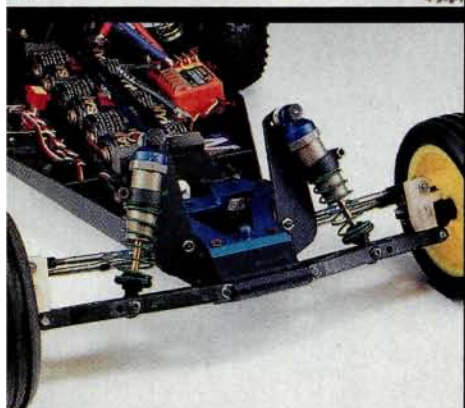
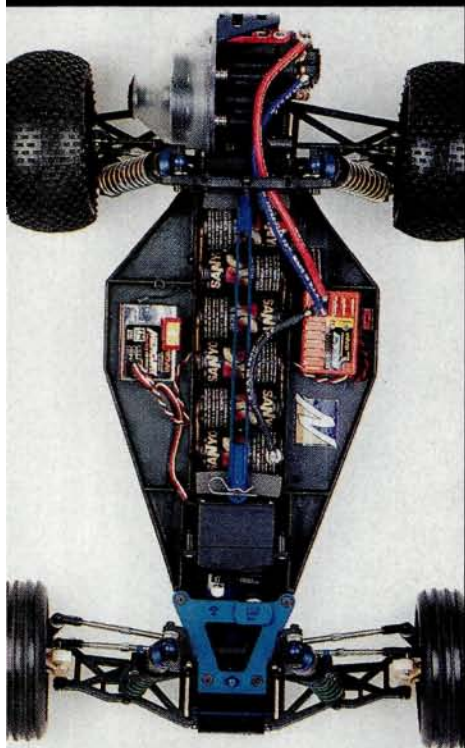
other? You've probably heard that both the B2 and the Double-X are capable of winning on any given day, but there's more to the story than this. We've spent years building and racing Losi and Associated kits, so we pretty much know what to expect. Although both of these cars are ready, willing and able to win, each goes about "doing its thing" in a slightly different way. Read on to find out which one will make you faster.

"With the Losi (Double-X 'CR'), you can just build the thing and throw it down and it works. I don't really like to wrench on my stuff, and with the Losi, I don't really worry too much about having the 'hot' setup." —Tim T., Canyon Country, CA



class buggies

by
Frank Masi



B2 vs. CR Stacking them up

■ Chassis

The B2 and 'CR' both have strong, light, molded chassis. Losi call their material "Stiffezell," while Associated call theirs simply "molded composite." Both, however, seem to have similar characteristics: the battery is placed along the center of the chassis—the section that's closest to the ground—to provide a low center of gravity.

Quick facts

- ✓ The original Double-X used Velcro® brand-fastener straps to hold the battery in place, but the 'CR' uses a molded brace that's similar to the B2's—a very secure way to keep your cells where they belong.
- ✓ The B2 chassis features a small channel through which the speed control's plug harness may pass under the battery on its way to the receiver. This makes for a neat installation job and prevents the harness wire from being chaffed by the battery.
- ✓ If you hard-wire your batteries (most serious racers do), you'll need to grind a slot in the Losi's rear battery holder to accommodate the battery's solder tab.
- ✓ Losi and Associated offer optional chassis molded of graphite composite, which is lighter and more rigid than the stock material.

■ Suspension

Both cars use a fully independent suspension system consisting of lower A-arms and adjustable, upper camber links at all four corners. At a glance, both suspensions look nearly identical, but if you were to measure each car's geometry, you'd notice the small differences that make one car handle differently from the other.

In back, the 'CR' arms are about $\frac{5}{32}$ inch longer than the B2's, and when you add the distance between both

RC10B2

DIMENSIONS

Wheelbase (in.)	10.375
Width—front (in.)	9.875
Width—rear (in.)	9.75
Weight (RTR)	3 lb., 6.3 oz.

CHASSIS

Type	Molded tub w/alum. front and rear plates
Material	Nylon composite

DRIVE TRAIN

Transmission	Sealed, 3-gear (2.4 reduction)
Differential type	Adj. ball
Drive shaft type	Universal/dogbone
Slipper clutch	Adj. friction-type

SUSPENSION (F/R)

Ind. A-arm w/adj. upper camber link; oil-filled dampers w/coil springs

TIRES

Front	Pro-Line XTR-M Edge
Rear	Pro-Line XTR Flat Stubbie

LIST PRICE

\$340

inner hinge pins (about $\frac{5}{16}$ inch greater on the 'CR'), you find that the total distance from outer hinge pin to outer hinge pin is about $\frac{5}{8}$ inch more on the 'CR.' To meet the ROAR width requirement, the 'CR' rear wheels have much less offset than those of the B2.

Up front is where you'll find the greatest difference between the two. The Losi's arms are approximately $\frac{11}{32}$ inch longer than those of the B2, and again, because the distance between the inner hinge pins is larger on the 'CR', the Losi's outer hinge pins are farther apart than those of the B2—approximately $\frac{3}{4}$ inch—a big difference on a $\frac{1}{10}$ -scale car. Losi achieved this by incorporating the front wheel bearings into the steering arm, thereby allowing the suspension arm to extend farther into the wheels, which have virtually no offset. The B2's bearings are installed in the wheels, and the

BRED FOR BATTLE



With the introduction of its RC10 2WD off-road buggy, Associated virtually owned the trophy podium during the mid-'80s; no other car then available could match the RC10's crisp handling and rock-solid construction. By the close of the decade, the RC10 no longer enjoyed such a comfortable margin of victory.

DOUBLE-X 'CR'

DIMENSIONS

Wheelbase (in.)	10.625
Width—front (in.)	9.625
Width—rear (in.)	9.875
Weight (RTR)	3 lb., 8.5 oz.

CHASSIS

Type	3-piece modular "G-tunnel"
Material	Stiffzell composite

DRIVE TRAIN

Transmission	Sealed, 3-gear (2.19 reduction)
Differential type	Adj. ball
Drive shaft type	Universal/dogbone
Slipper clutch	Adj. friction w/Hydra Drive viscous coupling

SUSPENSION (F/R)

Ind. A-arm w/adj. upper camber link;
oil-filled dampers w/coil springs

TIRES

Front	Losi Gold Wide Body
Rear	Losi Silver IFMAR Pin

LIST PRICE

\$349.95

wheels themselves have a greater offset to extend the car's front width to the legal measurement. There are pros and cons to both designs: the longer-arm Losi is a little better through bumps, while the shorter-arm B2 tends to handle more aggressively (more on this later).

When it comes to choices of camber-link location, Losi and Associated are of two very different minds. Losi tends to provide a multitude of holes for the upper camber links: four holes on the front shock tower and two on the front upright; 10 on the rear bulkhead and two on the hub carriers (the 'CR' actually has fewer holes than the original Double-X). Associated likes to keep things simple: the B2 offers no options up front and just two holes on the rear bulkhead. Which approach is best depends on how much you know about car setup. Fussing with camber-

link positions is best left to experienced racers who can "feel" the difference between one hole and another while on the track, but if you know what you're doing, having more tuning options will allow you to dial in your car one step further than your competition. For most racers, however, the fewer the choices, the better; there's such a thing as dialing yourself out, too!

Quick facts

- ✓ The B2's suspension is nearly symmetrical; the front and rear arms are of approximately the same length, and the front and rear inner hinge pins are the same distance apart. This provides nearly identical roll centers, front and rear, for very consistent handling.
- ✓ Many of the hinge pins on the 'CR' are "captured," i.e., held in place without the need for E-clips, which can become dislodged and allow the pin to fall out.
- ✓ For anal-retentive racers, a side benefit of the Losi's front-wheel design is that because the bearings are in the steering arm—not the wheels—it's easier to remove and clean the front tires with water.

Shocks

The B2 has Associated's tried-and-true Team shocks. These shocks define the word "smooth," and their hard-anodized, Teflon-coated aluminum bodies are nearly wear-proof. The Team shocks' seals are inserted through the top of the body and "click" into a small recess at the bottom. Once the seals, shaft and piston have been installed, the shocks are filled from the top and then sealed with an aluminum cap.

Losi's shocks also have hard-anodized aluminum bodies, but their seals, shafts and pistons are inserted—as a unit—through the bottom of the shock body after the body has been filled with oil.

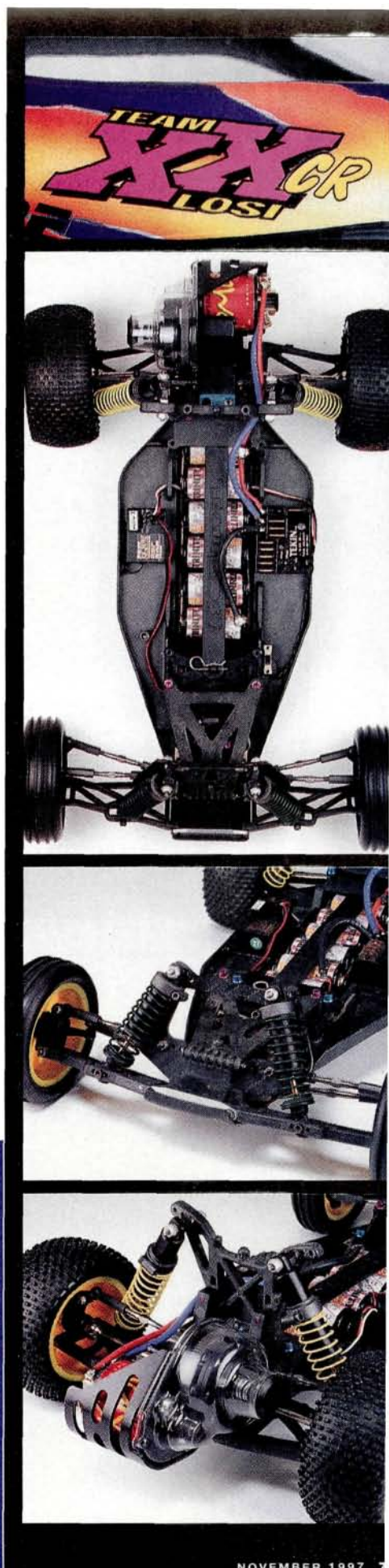
Competition from Japan (Kyosho's Ultima) raised the blood pressure of many RC10 owners, but it was the 1988 introduction of the JR-X2 from newcomer Team Losi that set the stage for the 90s and began a battle that rages as intensely now as it did then.

The JR-X2 evolved into the JRX-Pro, which was then replaced by the radically new Double-X—the first buggy ever designed solely on computer. A molded chassis with raised sides (to prevent scraping during hard cornering), a molded rear

shock tower with integral wing and body mount, and "captured" hinge pins (no E-clips needed) are among the many pioneering design elements of the Double-X, which is as cutting-edge today as it was when it was introduced in '93.

The RC10 endured through the late 80s and up to '95 (albeit in several incarnations, e.g., Championship Edition, Team Car, Worlds Car), when it was put out to pasture to make room for the B2—the first all-new Associated buggy since the original RC10. The B2 was

the culmination of all that had been learned from Associated's "stealth cars"—prototype buggies made specifically for the '89 and '91 IFMAR World Championships. The stealth cars were rolling test beds for new 2WD buggy technology, and in the hands of team driver Masami Hirotsuka, they gave Associated two of their 15 world champ titles. Also of note is that, in its first outing (the '95 Worlds in Japan), the B2 earned yet another world championship.



Quick facts

- ✓ *Losi's shocks allow you to change pistons or add/remove travel-limiting spacers without having to un-thread the shock-shaft end.*
- ✓ *Losi's shock pistons have three small holes for the shock oil to pass through during shock operation. Associated's shock pistons have two slightly larger holes. For pistons that have equal surface areas, the two-hole pistons will have less pack, and the three-hole pistons will have slightly more.*
- ✓ *Associated's Teflon pistons and shock-seal spacers ensure exceptional smoothness and longevity.*

Steering

The B2 and 'CR' use a dual-bellcrank system to handle the steering. The systems are similar: to make the steering response more or less aggressive, both allow racers to adjust Ackerman (the relative angles of the left and right front wheels during cornering); both have a servo-saver mechanism to avoid damaging the servo gears.

The major steering-system difference is out at the ends of the steering tie-rods. For more aggressive steering, Associated uses in-line axles (the wheel axle centerline is the same as that of the kingpin). To accommodate the 'CR' front-wheel-bearing design, Losi uses a trailing-axle setup in which the axle centerline falls behind that of the kingpin (this generally gives the car a less aggressive, more forgiving steering response).

Quick facts

- ✓ *The 'CR' has longer steering arms that provide more leverage for the steering servo. This gives a more linear relationship between servo throw and the servo travel.*
- ✓ *In-line axles give quicker steering—usually an advantage on tracks that have many tight turns.*
- ✓ *Most racers like to use 25-degree caster blocks (uprights) because they provide more steering going through the middle of and exiting a turn. Losi now provides these blocks with the 'CR,' while Associated includes 30-degree blocks with the B2 (25-degree blocks are available).*

Transmission

Manufacturers of off-road kits have experimented with many transmission configurations—three-gear, six-gear, diff on top, diff in the middle—but seem to have found that the three-gear, diff-on-the-bottom design works best. Internally, the B2 and 'CR' trannys are similar but they have different reduction ratios—2.4 for the B2 and 2.19 for the 'CR.' Both have fully adjustable ball diffs that use carbide-steel balls and have hardened-steel diff halves/outdrives. The Losi diff keys its rings to the diff halves, while the Associated Stealth diff rings seat in a small groove in the diff halves. Of the two designs, we have found that the Stealth

Great Ideas. Who had 'em first?

In a side-by-side comparison of the Double-X 'CR' and the RC10B2, you can't help but notice that they share quite a few design elements; then again, they were designed using similar CAD programs. But the historian in me feels the need to give credit where it's due. Remember, truly great ideas don't come easy, so feel free to applaud in the appropriate spots.

Idea

■ Molded chassis (2WD racing buggy)	Losi
■ Molded shock tower	Losi
■ Adjustable caster	Associated
■ Servo-saver bellcranks	Associated (orig. RC10)
■ Hard-anodized shocks	Associated
■ Three-gear tranny with lower ball diff	MIP
■ Color-coded springs	Associated
■ Raised chassis sides	Losi
■ Slipper clutch	Associated
■ Adjustable battery position (fore/aft)	Losi
■ Sideways-mounted steering servo	Yokomo
■ Rigid battery strap	Associated
■ Modular rear arm mounts	Associated

Who was first?

diff generally goes longer between rebuilds before developing a "gritty" feel.

Externally, you can see the differences under the spur-gear cover: the B2 has Associated's proven friction-slipper clutch, and the 'CR' has Losi's patented Hydra Drive traction-control system. In addition to significantly curbing unwanted wheel-spin, the Hydra Drive gives an advantage on very bumpy tracks, as it greatly reduces shock to the drive train whenever the rear wheels leave the ground and come back down harshly. The Hydra Drive's only disadvantage is that it adds rotating mass to the drive train, which reduces acceleration.

Quick facts

- ✓ *A lower reduction ratio, i.e., a higher numerical value, provides more torque and gives faster acceleration for a given pinion/spur gear ratio.*
- ✓ *Look closely at the 'CR' tranny and you'll see that its gears are more laid-down than the B2's and that its motor is a little farther away from the diff-outdrives' centerlines. More weight behind the rear axles increases rear traction but takes away a little steering.*

Which one's for you?

Choosing one of these cars is like deciding between the Mustang and the Camaro; both get the job done, but they do it in different ways, and that's what makes one more desirable than the other to certain drivers. The Double-X 'CR' offers unsurpassed rough-track handling and is no slouch on smooth tracks—thanks to the suspension upgrades that the 'CR' comprises, e.g., new rear toe-in plate and front uprights. We feel that the Double-X is a more forgiving car to drive; it seems less affected by building and tuning errors and has just enough built-in "push" to enable less skillful pilots to negotiate challenging tracks without becoming frustrated.

If the Double-X 'CR' excels in the hands of average drivers, the B2 can carve up a track with surgical precision under the guidance of a talented driver. The B2 steers like an on-road car, with consistent "feel" through every part of the turn—entrance, middle and exit. It's a confidence-inspiring car to drive, and it will reward aggressive drivers with the tightest lines imaginable. From our experience, we concluded that the B2 is more sensitive to errors in building or setup; by messing up just one part of its setup, e.g., the shock oil or the camber setting, it's a little easier to be "out in the weeds."

Once you've found that golden setup, however, the B2 adapts exceedingly well to almost any track without needing drastic changes to any settings.

If we had to recommend only one of these cars to particular drivers, we would first ask about their level of experience—of building and of driving—and the type of tracks they race on. For smoother tracks, a better driver will be able to use the B2's aggressive handling. On rough, outdoor tracks, a driver of average skill will probably have more success with the 'CR.' Because of its more forgiving handling and its ability to excel on bumpy tracks (the type on which most racers must compete), we give the overall nod to the Team Losi camp. They have done a wonderful job of perfecting the original Double-X design and have made the 'CR' an extremely benign racing partner. Hold on though! As this is being written, Associated is taking the wrapper off a brand-new buggy called the B3 (see our "Sneak Peek at the B3" elsewhere in this issue). I smell a rematch!

*Addresses are listed alphabetically in the Index of Manufacturers on page 209. ■

thrash TEST

1/10 scale electric

by George M. Gonzalez

THERE'S NO DOUBT that the engineers at Tamiya* had compatibility in mind when they designed the TA03F and F-Pro. Like Tamiya's popular M-chassis minicar line, the 03 features interchangeable bulkheads/gearboxes and suspension components. This allows the motor to be mounted up front (just ahead of the tires) or midship on the chassis (just ahead of the rear tires). In either configuration, the drive train provides full-time 4WD, but the weight is distributed differently in each configuration and creates two completely different driving experiences.

It didn't take long for racers to discover that they could convert their front-motor-mounted 03 into a more conventional mid-motor configuration with only a couple of spare parts and some light modifying. Soon, mid-motor TA03s started to show up at race-tracks around the U.S.



TAMIYA Porsche 911 GT1

SCALE 1/10
LIST PRICE \$267

DIMENSIONS

Length overall 17.5 in.
Wheelbase 9.44 in.
Width (F/R) 7.25/7.5 in.

WEIGHT (gross, RTR) 3 lb., 4.5 oz.

CHASSIS

Type Bathtub
Material ABS plastic

DRIVE TRAIN

Type Belt-drive 4WD
Primary Pinion/spur
Transmission Dogbones/axles
Differential(s) Bevel gear
Bearings/bushings Plastic and metal bushings

SUSPENSION (F/R)

Type Lower arm with molded upper link
Damping Oil-filled, coil-over shocks

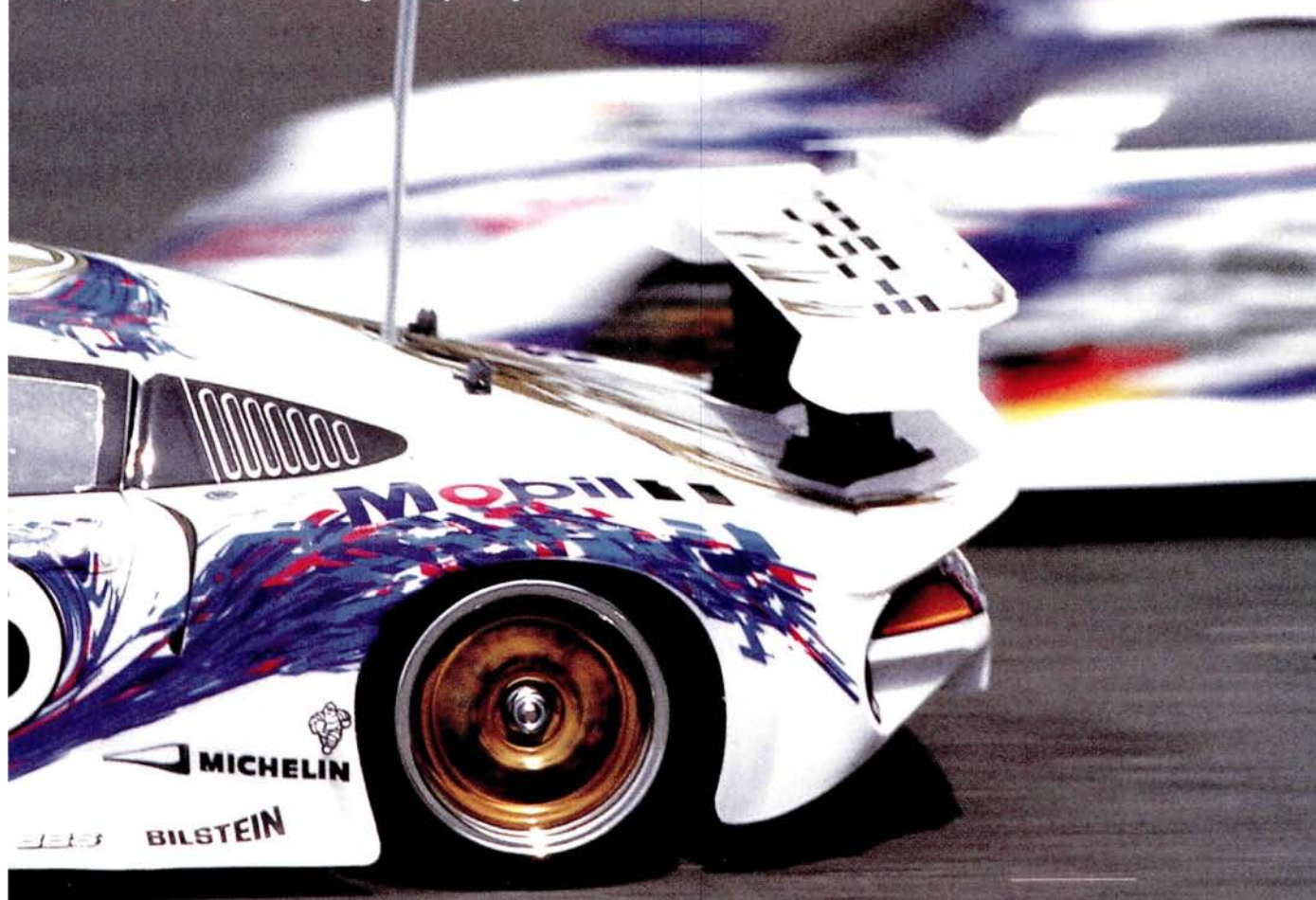
WHEELS (F/R)

Type One-piece plastic
Dimensions (DxW) 1.875x1 in.

SPECIFICATIONS

GET SHOCK

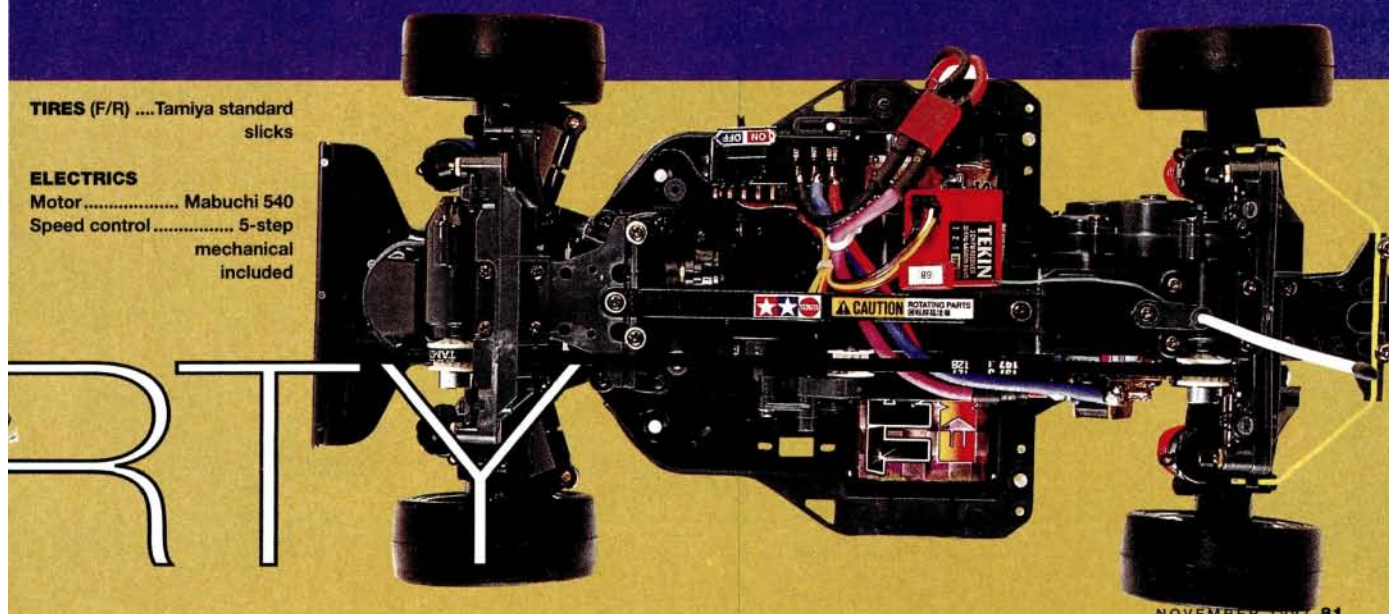
Tamiya recently introduced the new TA03R-S chassis, which is the company's first mid-motor offering to wear the TA03 badge. The reasoning behind the new motor configuration has nothing to do with altering the car's handling characteristics, though. If you wonder why Tamiya created the TA03R-S chassis, read on; the answer might surprise you.



TIRES (F/R)Tamiya standard slicks

ELECTRICS

Motor..... Mabuchi 540
Speed control..... 5-step mechanical included



TAMIYA PORSCHE 911 GT1

FEATURES

A lot can be learned about this car just by analyzing its chassis designation. We all know that TA03 is the model number, but what do the letters "R-S" indicate? As previously mentioned, the motor is mounted toward the rear of the chassis, hence the "R" designation. The "S" refers to the short wheelbase—much shorter than that of the TA03F and F-Pro. "How much shorter?" you ask. How does a full inch sound? If you think that's drastic, you're right!

So what was Tamiya's reason for creating a short-wheelbase chassis with a mid-motor drive train? To accommodate the beautiful new Porsche 911 GT1 body, that's why. As you know, Tamiya has a reputation for producing perfectly scale-looking R/C products, and the 911 GT1 is



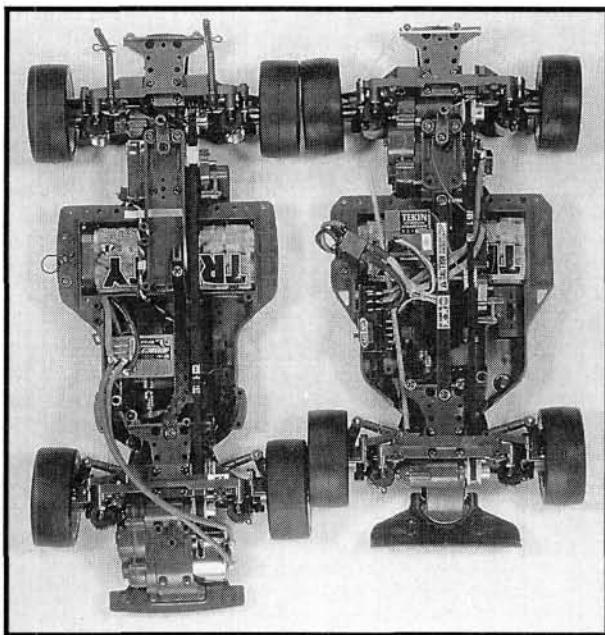
Tamiya's 911 GT1 is a work of art. After spending many hours detailing the body, you'll probably be afraid to drive it. After the first run, however, you'll want to drive it over and over again because it's a truly exciting car to pilot.

- **Chassis.** The R-S features a plastic bathtub chassis that is very similar to the one on the TA03F. The only difference is that it's a full inch shorter. As a result, it's also lighter—an advantage in its own right. The disadvantage, however, is that there is very little room for radio gear. Another notable feature is the large opening on the bottom of the chassis; this allows more air to flow around the battery pack for better cooling. The Tamiya bathtub chassis (short) is available separately (part no. 50745, \$10).

- **Front gearbox.** The R-S features a new front gearbox that's lighter and more esthetically pleasing. Anyone who has converted a TA03F or F-Pro to a mid-motor configuration knows that the rear gearbox looks awkward when mounted in the front, and all that extra plastic serves no purpose other than to add weight. The new front gearbox looks good and weighs less. In addition, the R-S comes with a cool front bumper. If you've converted your TA03F or F-Pro to a mid-motor configuration and would like to dress up the chassis, Tamiya sells the "B" parts separately (50743, \$11), and they come with the new front gearbox pieces and front bumper.

- **New front shocks.** The front end of the R-S is graced with smaller versions of Tamiya's excellent molded CVA shocks. The new super mini-shocks have shorter bodies and shorter shafts, and this makes

them lighter than the standard-length shocks on TA03 touring cars. The new front shocks don't call for internal shock limiters; therefore, they offer the same amount of down-travel as the standard-length shock bodies. Tamiya now offers the super mini-shocks in pairs (50746, \$18), and the set includes the bodies, shafts, O-ring seals, diaphragms, pistons, spring retainers, preload adjusters, ball ends and ball joints. I may pick up a couple of additional sets for some of my other cars; these shocks are really cool.

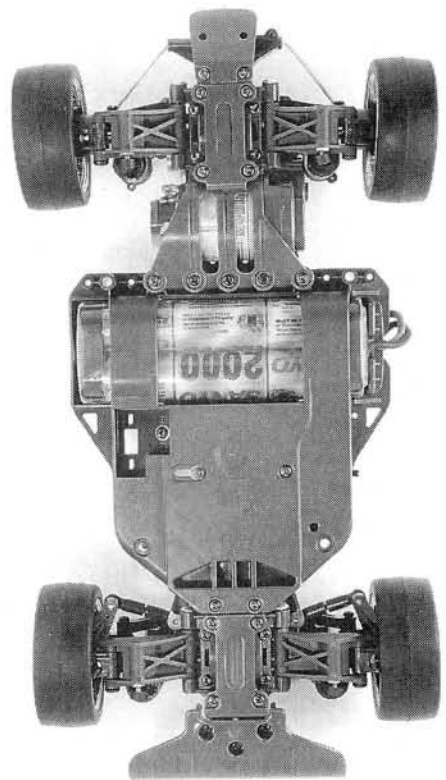


The TA03R-S chassis on the right is considerably shorter than the TA03F on the left. The TA03R-S's rear end is also slightly wider than the TA03F's. A few other subtle differences make the R-S a completely different driving machine.

no exception. The full-scale 911 GT1 has a mid-engine drive train and a short wheelbase, and its rear wheel track is wider than the front. For this reason, on the Tamiya 911 GT1, the rear wheels have greater offset than the front wheels, and this provides a slightly wider stance. How much wider? A 1/4 inch, to be exact (more on the wheels later). The perfectly scale 911 GT1 body now has an equally scale chassis.

NEW GOODIES

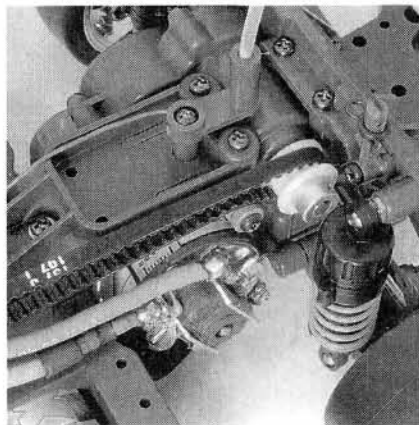
Rather than list the features that you already know about, let's look at some of the car's hot new features.



Check out the large opening in the chassis to allow cool air to flow around the battery. Yup, the motor is in the back.

TAMIYA PORSCHE 911 GT1

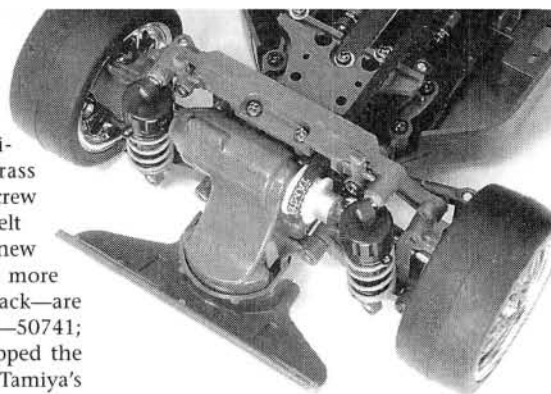
• **Odds and ends.** The only other item that is exclusive to the R-S is the slightly shorter drive belt, which is necessary to accommodate the shorter wheelbase (no part number or price is available on the stock drive belt, but Tamiya offers an optional Aramid-reinforced drive belt in the short configuration; see "Factory Options" sidebar). To prevent the drive



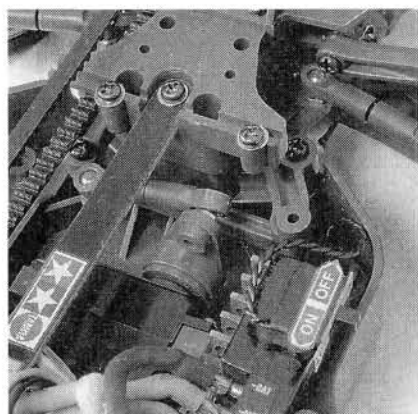
The midship-mounted motor. Notice the two side-by-side bushings, which have been screwed into the gearbox with a 3x15mm tapping screw. The bushings work as a belt guide and route the drive belt over the motor. The Yokomo-based Motor Man modified motor has tons of power.

belt from binding with the midship-mounted motor, two additional 850 metal bushings, a brass sleeve and a 3x15mm tapping screw are provided and are used as a belt guide. As previously mentioned, new gold BBS wheels—the rears have more offset to provide a wider rear track—are also included (rear—50742, front—50741; \$8). For the photo shoot, I equipped the 911 GT1 with a complete set of Tamiya's optional 2-piece mesh wheels (50548). They're chrome with gold mesh inserts, and they look incredibly realistic. They feature adjustable offsets that allow you to adjust the chassis' overall width. Naturally, the rear wheels were set up with more offset (wide) to accommodate the 911 GT1 body.

Tamiya's new Porsche 911 GT1 body is of static model quality. All the full-scale 911 GT1's slopes, curves and air intakes have been meticulously sculpted into the body. This kind of detail can be achieved only with expensive multi-piece molds, and Tamiya spares no expense when heating up the Lexan. The body has separate side



This front-end view shows the new TA03R-S's front gearbox and front bumper. The shocks are also new and are much smaller than the rear shocks. I filled the shocks with Trinity 90WT oil and installed Tamiya's optional blue (firm) tuned springs.



The steering bell-crank remains unchanged on the R-S. The mighty Hitec HS-225BB miniservo worked flawlessly. It's small and light, yet it has tons of torque and more speed than you can ask for. Note that the Tekin ESC is mounted on its side.



Building & Setup Tips

• Use a liberal amount of grease inside both the front and rear gear diffs. In fact, use at least 90 percent of the supplied grease inside both diffs. The rest of the gears, shafts and bushings require only a small amount of grease, so don't be afraid to use too much in the diffs. If the diffs do not get enough grease, they will spin freely without any resistance, and this can cause all sorts of handling problems.

• Be sure to lightly coat all the internal gears with the supplied lube. This will make the tranny much smoother and quieter. I use Aero-Car Technology® Super Speed Gear Lube on all my cars. The results are amazing.

• Shocks: remove all the burrs from the shock pistons before you install them on the shock shafts. The supplied shock fluid will work OK, but you'll notice that the car will have a lot of chassis roll. You might want to pick up some heavier shock fluid. Associated® 80WT or Trinity 90WT is just about right for most track conditions. If you really want the shocks to perform smoothly, apply some RCPS® Green Slime to the O-ring seals.

• In step 7, the instructions recommend that you grease the ends of the dogbones before you install them between the stub axles and outrives. Don't do it. The grease will attract dust, which will soon act like sandpaper and wear out your outrives.

• Applying the decals to the body is by far the most time-consuming task in building this model, so set a few evenings aside for body detailing. The best method is as follows: cut each decal out as close to the trim lines as you can. Apply the window moldings and front and rear detail accents first, then move on to the graphics. Apply the sponsor logos last. The larger decals should be applied wet then "floated" to the correct position. Warm, soapy water works great, but if you can, pick up some Autographics® Sticker On. This stuff is awesome. I used a hair dryer set on low to dry and stretch some of the decals. This takes some practice, but the results are well worth the effort. The best advice on applying decals, however, is to take your time. You can always spot the rush jobs.

THINGS YOU'LL NEED

- 2-channel radio system with receiver and two servos or one servo and an ESC.
- 6-cell stick battery pack.
- Battery charger.
- Lexan paint for the body.
- If you want more speed, an open-endbell competition motor is a must.

FACTORY OPTIONS



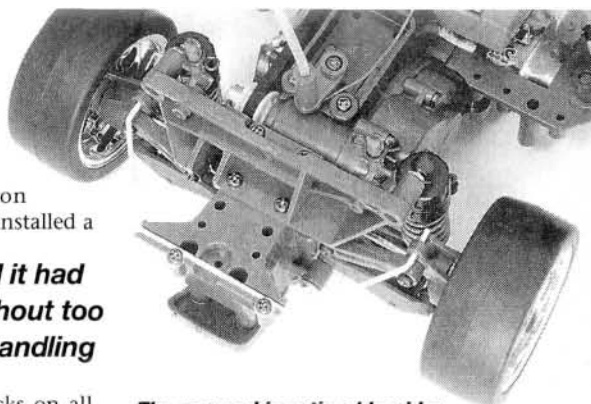
- TA03R ball-bearing set—part no. 53296.
- On-road tuned spring set—53163.
- TA03 fluorescent stabilizer set—53276.
- 4WD front one-way diff unit—53200.
- Universal shaft set—53172.
- TA03 ball differential—53267.
- Touring- and rally-car turnbuckle upper-arm set—53192.
- TA03 aluminum motor heat sink—53275.
- TA03 aluminum rear uprights—53288.
- TA03R-S Aramid-reinforced drive belt (short)—53297.

Factory Options Tested

- Tamiya M2 slicks (two pairs).
- Tamiya on-road tuned springs (blue—front, red—rear).
- Tamiya tuned swaybar set (yellow in the rear only).

mirrors and a three-piece, hard-plastic, dual-plane rear wing that's as scale as can be. Also included are two large, full-color decal sheets with over 85 decals. One of the sheets contains the window moldings,

the rear shocks were outfitted with red (soft) tuned springs. I also installed a Tamiya yellow (medium-thickness) swaybar on the rear suspension only, and I installed a



The rear end is noticeably wider than those of all other TA03s. I added the optional swaybar to cut down on body roll and to divert some traction to the front. The rear shocks are filled with Trinity 90WT oil, and I added Tamiya's optional red (soft) tuned springs.

The Porsche was greased lightning on the straights, and it had plenty of steering. I was able to enter and exit corners without too much effort, and I was confident of the car's speed and handling

front and rear illumination and all the body accents, and the other has all the graphics and sponsor logos. I might also mention that it took me five consecutive evenings to apply all the decals to the body. The Porsche 911 GT1 body set is now available separately (\$0747, \$45), and it includes the body, wing, side

complete set of Tamiya M2 slicks on all four wheels. This is basically the way I used to set up my Tamiya TA02. The reason for the hop-ups should be obvious: I wanted this car to perform at its best.

After our ace action photographer John "Doogie" Howell had snapped off a few rolls of film with his brand-new Nikon FS,

The Competition	Kyosho TF-2 Spider EP	Schumacher SST 2000	Tamiya TA03F	Tamiya TA03R-S	Yokomo YR-4 II
Wheelbase	10.3 in.	11 in.	10.1 in.	9.44 in.	10.125 in.
Width (F/R)	7.9 in.	7.125 in.	7.1 in.	7.25/7.5 in.	7/7.125 in.
Weight	3 lb., 4 oz.	3 lb., 4 oz.	3 lb., 8.5 oz.	3 lb., 4.5 oz.	3 lb., 2 oz.
Diff type	Gear diffs	Ball	Bevel gear	Bevel gear	Ball
Chassis	Graphite/aluminum	Fiberglass	Plastic	Plastic	Fiberglass
List price	\$259.99	\$319.50	\$312	\$267	\$250 (est.)
Available at*	\$189.99	\$190	\$199.99	\$169.99	\$140 (est.)
Reviewed in	9/96	12/96	6/97	11/97	10/97

*Prices vary with location.

mirrors and decals. Keep in mind that this body will fit only the TA03R-S short-wheelbase chassis.

The rest of the car is all TA03F. For more information on it, check out Peter Vieira's "Thrash Test" on the Tamiya Kure Nismo (June '97 issue). Our more perceptive readers probably noticed that I included the part numbers and prices of all the exclusive R-S parts. I figured that a few of you out there would like to convert your TA03Fs into TA03R-Ss. Hey, how about converting a TA03F-Pro into a TA03R-Pro? I'm already salivating!

TEST GEAR

- Airtronics* CX2P FM radio system.
- Tekin* TFM micro-receiver.
- Tekin G12 ESC.
- Hitec HS-225BB mini steering servo.
- Motor Man Pro Series 14-turn double modified motor.
- Trinity Ex-Tech 2000mAh stick pack.
- Deans* Ultra plugs.
- Trinity 90WT silicone shock fluid.

PERFORMANCE

Before I tell you how the car performed, I must make a confession: I modified it before it ever hit the tarmac. I installed a complete set of Tamiya sealed ball bearings. I then filled the front and rear shocks with Trinity* 90WT silicone shock fluid. The front shocks were given Tamiya's blue (firm) tuned springs, and

Likes

- Stunning Porsche 911 GT1 body.
- Easy-to-work-on chassis.
- Excellent performance.
- Cool new tub chassis, front shocks and front bulkhead.
- Excellent parts quality throughout.
- Great instructions.
- Excellent belt tensioner included.
- Incredible hop-up potential.

Dislikes

- Very few body sets available for short-wheelbase touring-car chassis.
- Suspension and steering slop.

he gave me the look that means "Put the pedal to the metal." The car tore out with authority. The Motor Man* motor packed a decent punch, but I noticed that it was undergeared with the supplied 14-tooth pinion gear. Perhaps a 17-tooth pinion would be more suitable. The car was as stable as can be while going down the straights at full speed, but it pushed slightly in the corners. This surprised me; I was under the impression that this car would turn like a jackrabbit. This didn't bother me, though; the slight understeer suited my driving style just fine. Besides, I

figured that if I needed more steering, I could always replace the firm blue front springs with medium yellows.

I later returned to that test site with an arsenal of batteries and just went for it. I ran a few packs without making any adjustments, and I was very pleased with the car's attitude. Unfortunately, I forgot to take my box of metric pinion gears, so I had to settle for extra-long run times instead of blazing top speed.

I then decided to experiment with a Kose* one-way unit, which I installed in the front gearbox. To my amazement, the car was noticeably faster on the straights, but it actually had too much steering when exiting the corners (the car wanted to swap ends if pushed too hard). In addition, the car completely swapped ends whenever I tapped the brakes. I ended up removing the swaybar from the rear suspension and installing it up front. I also turned down low-end throttle-adjustment pot (EPA) on my radio so that the car was given minimum braking. It was now completely dialed. It was greased lightning on the straights, and it had plenty of steering. I was able to enter and exit corners without too much effort, and I was confident of the car's speed and handling capabilities. The most appealing aspect of my little test drive, however, was watching the 911 GT1 body rip up and down the parking lot. This car rocks!

(Continued on page 193)

thrash
TEST

1/10 scale electric



SCHUMACHER **Fireblade 2000** by Jim Knepley

HERE IN THE U.S., we don't often hear the Schumacher* name in racing circles, and when we do, we're mostly talking about their outstanding 4WD Cat 2000 EuroChamp. To the casual observer, Schumacher might seem to be half a step behind the U.S. 2WD dirt heavyweights, Losi and Associated. The company is legendary in Britain, though, and always seems to win European championships.

All-Terrain Euro Champ



Remember that up to now, races across the pond have been run mostly on grass and multi-surface tracks; on these, Schumacher cars perform formidably. But the increased popularity of the sport has forced European racers to run on dirt, and Schumacher now designs kits for a greater variety of surfaces. The Fireblade 2000 was designed to dominate on any type of track, and its performance lives up to its name: it's one hot ride.

SCHUMACHER FIREBLADE 2000

KIT FEATURES

The Fireblade 2000 evolved from the Cougar 2000 1995 Team car and has many of its features. If you know the Cougar 2000, this will all seem very familiar.

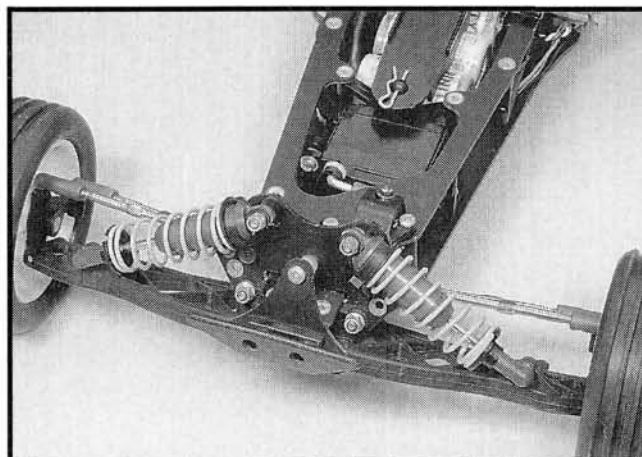
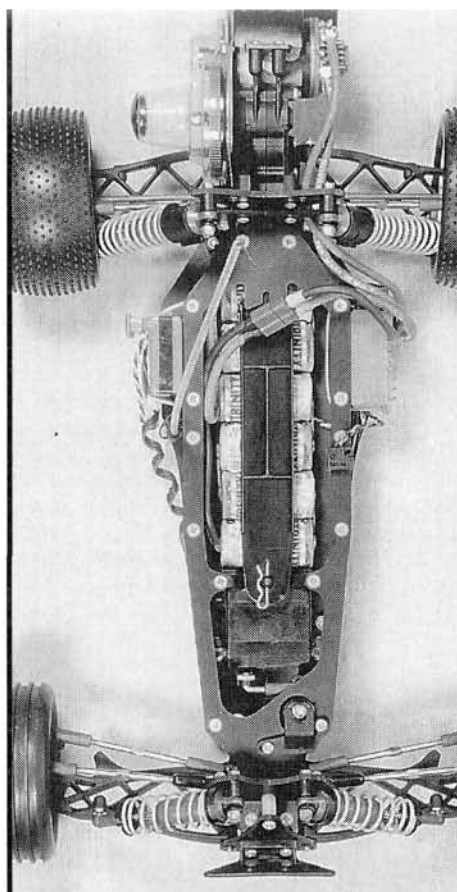
• **Shocks.** The new shock geometry instantly draws attention. The front shocks sit lower on the shock tower—almost horizontal; the rear shocks are lower as well, but the difference is not as dramatic. Front and rear shocks sit at a fixed point on the arm and can be adjusted on the shock tower. The well-molded, durable, plastic shock bodies—the same material as Schumacher uses for the SST 2000 shocks—fit the shock cartridges flawlessly. The cartridges themselves are the volume-compensating units Schumacher kits have used for years. Color-coded coil-over springs round out the look. For purists, aluminum shock

bodies are available, but they aren't a necessity for most racers.

• **Chassis.** Twin fiberglass decks provide a very rigid platform. Plastic chassis gates hold the decks together in the middle, and the gearbox and front bulkhead provide stability at the ends. My test unit didn't flex or twist at all. I found that by the end of a long season, my Cougar 2000 chassis gates were worn out and had to be replaced, and I suspect that these might do the same. Schumacher offers graphite chassis decks.

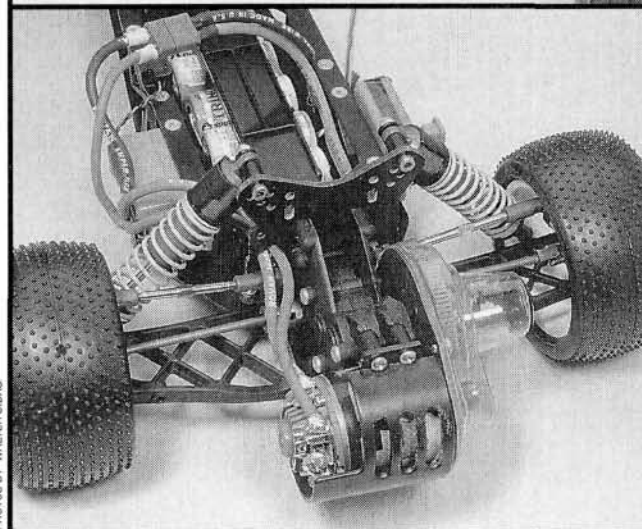
• **Suspension.** The revised front suspension is much more durable. Instead of relying on the strength of a single steel pin, the suspension support is now more a part of the front arm. The front uses the Schumacher Active Caster System (SACS) at 15 degrees and features adjustable toe-in and camber and variable Ackerman. To

The Fireblade's solid, predictable rear traction makes it very easy and smooth to drive. In the hands of a skilled driver with good setup skills, it could compete against the world's best.



■ **Top right: the Fireblade is an all-business 2WD off-road buggy. The upper and lower chassis plates provide a rigid foundation, and battery changes are a snap, thanks to the user-friendly battery retainer.**

■ **Top left: the Fireblade's front end is far from conventional. Note the laydown shocks and the super-long suspension arms. The front end features Schumacher's Active Caster System (SACS), which was designed to increase the tire's contact patch when cornering.**



■ **Bottom left: here's a shot of the Fireblade's "pro" rear end—adjustable everything and a super-efficient, slipper-clutch-equipped transmission (slipper is optional). Note that the shocks are also mounted toward the chassis' centerline.**

specifications

SCALE 1/10
LIST PRICE \$279.95

DIMENSIONS

Length overall 15.5 in.
Wheelbase 10.7 in.
Width (F/R) 9.85 in.

WEIGHT (gross, RTR) 3 lb., 4 oz.

CHASSIS

Type Dual deck
Material Fiberglass

DRIVE TRAIN

Type Sealed 3-gear
Primary Pinion/fix spur
Transmission Steel drive shafts
Differential(s) High-torque ball
Slipper clutch Optional
Bearings/bushings Bearings

SUSPENSION

Type (F/R) Lower A-arm w/adjustable upper links
Damping Plastic body, oil-filled, coil-over shocks w/adjustable damping

WHEELS (F/R)

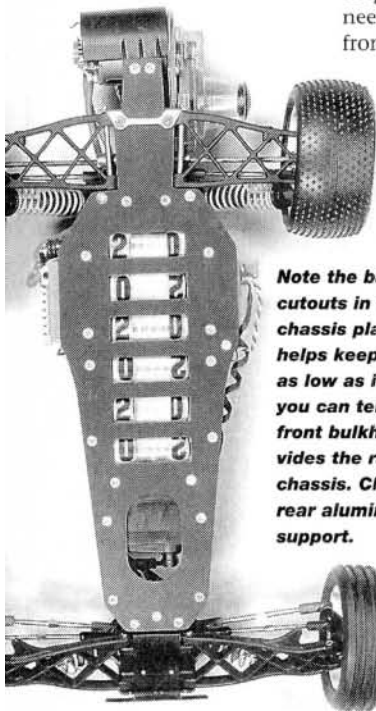
Type 3-spoke plastic
Dimensions (DxW)
—front 2.3x0.75 in.
—rear 2.3x1.4 in.

TIRES

Front Green-compound studs
Rear Green-compound mini-pins

ELECTRICS

Motor, battery and ESC Not included



Note the battery cutouts in the lower chassis plate. This helps keep the car's CG as low as it can be. As you can tell, the car's front bulkhead provides the rake, not the chassis. Check out the rear aluminum pivot support.

help racers tune for tracks on which there's no need for active caster, a non-SACS version of the front suspension is in the works.

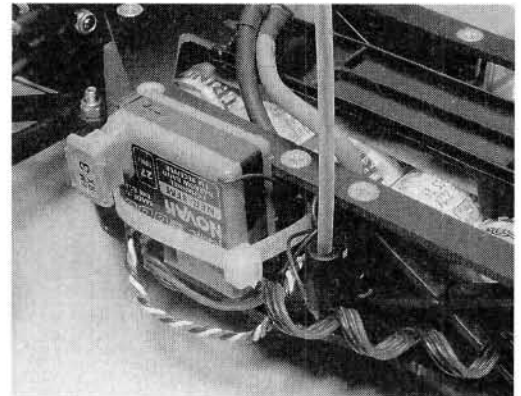
The fully adjustable rear-suspension geometry is extremely slick. With the Schumacher-suggested setup, it provides 3 degrees of toe-in on the inboard side of the arm with 1.3 degrees of anti-squat and adjustable camber. Adjusting it is as simple as replacing a block on each side.

- **Transmission.** A new gearbox puts the motor in a better position for its weight to improve traction and enhance rear-end stability. Schumacher's steel Blade drive shafts move the power to the wheels, and a fixed spur gear and aluminum motor plate round out the package.

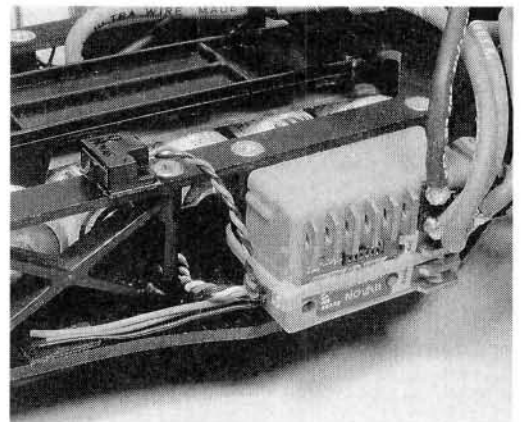
The Blade drive shafts are a new twist on the universal-joint design. Where the shaft meets the outdrive, there is a small horseshoe-shaped clip that rides against the metal outdrive to reduce friction, provide more consistent power and minimize wear on the metal parts. Schumacher says I'll eventually need to replace the blade portion of the shaft, but the rest of the drive train should outlast the rest of the kit.

TEST GEAR

For electronics, I chose to use an Airtronics* 94151 servo, a Novak* Cyclone ESC, a Novak



Things are a bit cramped on the chassis. The ESC and receiver are installed on their sides. A zip-tie helps secure the components when the going gets rough.



Building & Setup Tips

To assemble this kit, you'll need a posi-head screwdriver (available from Schumacher) or a no. 1 Phillips screwdriver, a sharp hobby knife, a file, nut drivers and a pair of pliers. The kit includes hex wrenches in appropriate sizes. The Fireblade should go together easily in two evenings. The overall fit of my kit was very satisfying; I needed only to smooth the edges of the fiberglass.

- If you intend to race in modified classes, immediately install a slipper clutch instead of the stock fixed-spur system. For stock racing, not having a slipper can be an advantage because of the reduced rotating mass. The kit is also compatible with the Schumacher Viscodrive and all of the Cougar 2000 layshafts.
- When assembling the SACS suspension up front, be sure to screw the kingpin in perfectly straight. If it's even a little off-center, it will radically change the suspension workings. Be careful with the rose joints (ball ends, to you and me) on the front; if you aren't careful when you're assembling them, they might break. Briefly heating the plastic part of the joint will make assembly easier. Once assembled, the rose joints will not give you any trouble.
- The rear features an excellent system for changing the rear toe-in and anti-squat. Remove two screws to switch both of the blocks, and you can totally rework the rear suspension to suit a variety of track conditions.
- Schumacher warns that the rear gearbox plastic is very durable and can be difficult to thread screws into. They aren't kidding! The screws that attach the gearbox to the chassis are difficult to install. Because the gearbox makes up nearly the whole of the rear end, 12 screws go into it. It is a good design, but wrenching could be tough; after you've tapped the holes, the screws will be easier to work with.
- The receiver and ESC are held snugly to the sides of the chassis gates with cable ties. When you want to remove them, just snip the ties. Just to be sure, I further secured the speed control with a piece of servo tape on the bottom. The Novak Cyclone fits as if it was made for this car!

THINGS YOU'LL NEED

- 2-channel radio system.
- "Racing-type" servo for steering.
- ESC.
- Receiver.
- Motor.
- Batteries.
- Paint for Lexan body.
- Zip-ties/servo tape to hold receiver and ESC in place.
- Charger.

FACTORY OPTIONS

- Viscous drive unit (requires Viscodrive layshift)—part no. U1787P.
- Alloy Pro Shock bodies—U1963E/set of 4.
- QC slipper clutch set—U823S.
- 4 x 8mm diff center bearing—U1419K/pair.
- 4mm tungsten-carbide diff balls—U14750/pack of 10.
- Rear anti-roll bar—U1847X.
- Carbon-fiber chassis set—U1972P.
- Alloy pivot-pin blocks—U1988J (0°), U1989K (3°).

The Competition

Wheelbase
Width (F/R)
Weight
Diff type
Chassis
List price
Available at*
Reviewed in

Losi Double-X 'CR'

10.625 in.
9.3 in.
3 lb., 8.5 oz.
Ball
Stiffezel
\$349.95
\$189.99*
11/96

Associated RC10B2

10.375 in.
9.625/9.875 in.
3 lb., 8.5 oz.
Ball
Molded composite
\$340
\$179.99
5/96

Schumacher Fireblade 2000

10.717 in.
9.85 in.
3 lb., 4 oz.
Ball
Fiberglass
\$279.95
\$174.97
11/97

*Prices vary with location.

NER3FM receiver, Trinity* 2000 batteries and a Peak Performance* EBX 11-turn motor. Signals come from a JR* R-756 radio.

PERFORMANCE

A small indoor track was the proving ground for my Fireblade. As soon as I set up my pit area, people started to mill around, curious about the car. There are

makes it very easy and smooth to drive. In the hands of a skilled driver with good setup skills, it could compete against the world's best. The stock tires won't work everywhere, though; for top performance, be sure to have the right tires for your track. Check to see what the other racers at your track use.

And I soon found that somewhere in the super-low gearbox reduction, the efficient drive shafts, the low center of gravity, the batteries, the motor, or the Novak Cyclone speed control (using the first preset profile), a speed demon lurked. This kit accelerated to top speed with a great deal of authority while keeping its back end stable. It's smooth.

On the rear, I started out with the stock Green-compound mini-pins. Given their widely spaced pins, they worked surprisingly well until the track dried out; then I switched to Losi* Silver-compound IFMAR pins. At the same time, I switched to Losi Silver wide-body ribbed front tires, but they made the front of the car slightly too wide to fit the track's "tech" box. Gold-compound, regular-width Losi ribs work well and fit without trouble. None of the rear tires I tried made the kit too wide in the back. By the time you read this, the front geometry will have been changed to allow the use of slightly wider tires such as the Losi wide-body ribs.

FINAL THOUGHTS

This is the best Schumacher 2WD I've driven. It's fast and it handles wonderfully. During the many times I've run it, not a single part broke, so its durability is not in question. I am still impressed with its jumping ability and improved handling. It runs smoothly but can quickly dart into and out of traffic. The car might be more of a handful to tune and work on, but it does handle well, and it's also competitively priced. It certainly has the ability to keep up with the rest of the pack.

*Addresses are listed alphabetically in the Index of Manufacturers on page 209.

ACE Hardware & Hobbies



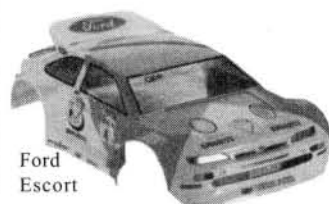
1:8 Sedan Bodies



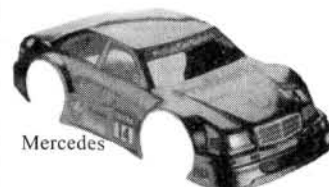
Opel Calibra



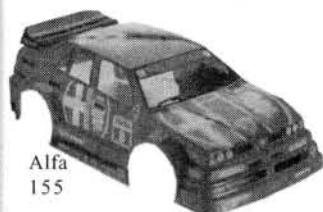
Porsche 911



Ford Escort



Mercedes



Alfa 155



Toyota Celica

All Bodies \$39.95

Info: All these bodies are designed to fit 1/8 scale off road cars, such as Inferno, Mugen, Hodr, ect.

1-800-3-TEAMJR
Email Us At: teamjr@best.com
<http://www.ace-hobbies.com>

Likes

- An update of a proven winner.
- Outstanding durability; care was taken to strengthen previously weak spots.
- Great handling and steering.
- The suspension is highly tunable through simple adjustments.

Dislikes

- Parts aren't as readily available as they are for some other kits.
- The car doesn't seem to have been designed with easy wrenching in mind.
- Some speed controls are difficult to install in this car.

plenty of fast racers at this track, so I always have my work cut out for me.

I started with the manual's suggested setup, apart from moving the front roll-center link to hole "A" to compensate for the smallness and tightness of the track. If you race on a track with monster jumps, you might want to increase the pack in the shocks.

I took a couple of practice runs and was immediately impressed. The Fireblade handles very well; it even handled the jumps flawlessly. It's in the steering that this kit really shines. With the correct front tires, the car has as much aggressive off-power steering as any pro-level kit I have driven before. The Fireblade's solid, predictable rear traction

thrash
TEST

1/10 scale electric

YOKOMO YR-4M2

by B.J. Christensen



WHAT'S THE MOST popular and fastest-growing class of racing in the R/C car industry today? You guessed it—1/10-scale electric on-road touring cars.

The number of cars and hop-up accessories that have become available over the past two years is simply startling. I have been involved with R/C cars for more than 14 years, but I've never seen such a growth spurt in any other racing class. Manufacturers of these 4WD sedans are working at a feverish pace to have the best car kit on the market, and it shows.

A little over a year ago, Team Yokomo* released their top-of-the-line sedan kit, the YR-4M; I had been lucky enough to "Thrash Test" it for the September 1996 issue of *Car Action*. Just when I thought Yokomo couldn't do much more to improve the car, they pushed the envelope and unleashed the new YR-4M2. At first glance, the two kits look much the same, but a number of subtle changes and improvements have made a world of difference.

SCALE.....1/10
LIST PRICE.....\$425

DIMENSIONS

Length overall.....14 in.
 Wheelbase.....10.13 in.
 Width (F/R).....7.25 in.

WEIGHT (gross, RTR).....3 lb., 3.1 oz.

CHASSIS

Type.....Lower plate w/adjustable upper deck
 Material.....Graphite

DRIVE TRAIN

Type.....Belt-drive 4WD
 Primary.....Pinion/spur
 Transmission.....Universal shafts
 Differential(s).....Ball
 Bearings/bushings.....Bearings

SUSPENSION (F/R)

Type.....Lower arms w/adjustable upper links
 Damping.....Coil-over, oil-filled micro shocks

WHEELS (F/R)

Type.....One-piece plastic
 Dimensions (DxW).....2x0.75 in.

TIRES (F/R).....Rubber slicks

ELECTRICS

Motor, battery, ESC.....Not included

specifications

As you can tell, the YR-4M2 is an all-business touring car—no hop-ups required.

Track time is all you'll need to become a champion. Check out the offset battery placement and the adjustable upper deck—two Yokomo exclusives.



the National Champ Revealed

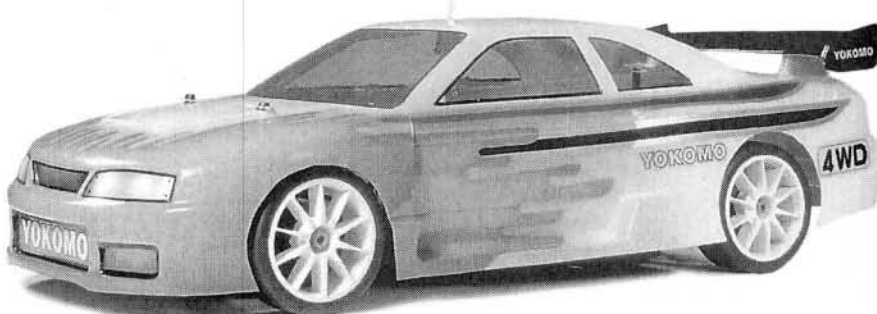
PHOTOS BY JOHN HOWELL & WALTER SIDAS

YOKOMO YR-4M2

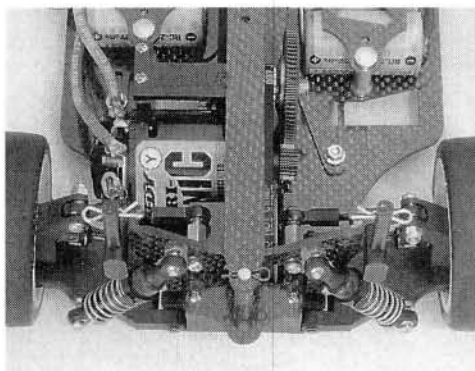
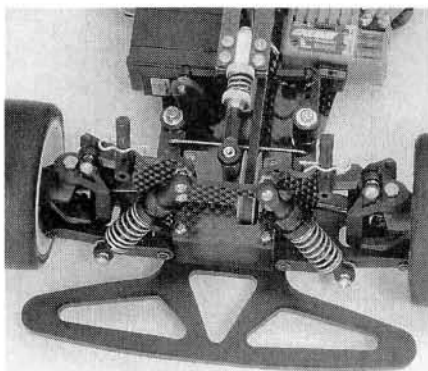
KIT FEATURES

The YR-4M2 was specifically designed with one thing in mind—racing! The chassis configuration is a little more complex than that of its predecessor, the YR-4M. Again, the folks at Yokomo went with their proven saddle-pack design, but this time, they added a new twist. Instead of being sunk into the chassis, the batteries have separate mounts that can be moved forward or backward for weight distribution. A top brace with a small, adjustable shock absorber stiffens the chassis and controls belt tension. This design allows a slight flexing that reduces belt skipping and enhances the rear traction. With this setup, I thought there might be too much chassis flexing, but the rigid, carbon-graphite material eliminates that problem.

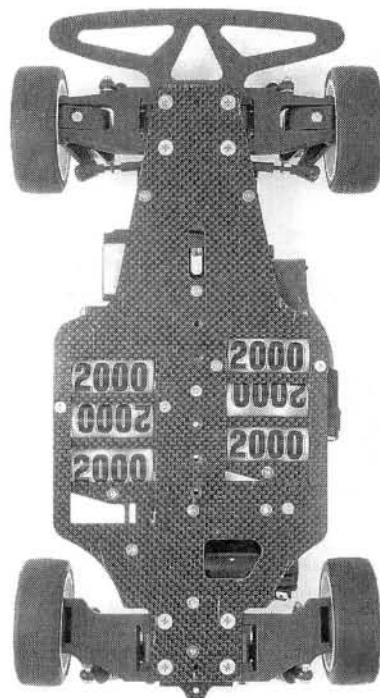
Now to the drive train: it's consistent with most of Yokomo's vehicles. Ball differentials



in the front and rear are powered by belts from the mid-engine portion of the car. The center shaft assembly has a new and very useful option: you can insert a small pin into the front drive pulley to lock up the standard one-way system and create a full-time 4WD drive train. The change is quick and easy to make, and depending on track conditions, it can make a huge performance difference. According to Yokomo, the full 4WD setup is for slick tracks, and the one-way



Left: a new, stiffer composite material is used for all molded suspension pieces. The YR-4M2 has Yokomo's lightweight micro shocks. Note the universal swingshafts and graphite shock tower—standard issue. A large bumper provides crash protection. **Right:** Yokomo's micro shocks, universal swingshafts, graphite shock tower, super-narrow wheels and tires—all stock on the YR-4M2.



The wide chassis plate has lots of room for electronics. You can see the offset battery placement even better from this view.



Building & Setup Tips

- To prevent the graphite chassis and components from splintering and breaking, deburr their edges with fine-grit sandpaper. Then, using a cotton swab, run a bead of thin CA around them.

- Use Shoe-Goo to safely secure your steering servo and prevent it from jiggling under load.

- When you adjust the belt tension, take your time. It should really be slightly tighter than you might at first think it should be.

Here's the hot setup from Team Yokomo factory driver Barry Baker, who top-qualified with his YR-4M2 at the ROAR On-Road Nationals.

FRONT SUSPENSION

- Upper link—goes into the hole on the shock tower that is not countersunk.
- Shocks—stock pistons and springs; Associated 35WT silicone; no limiters; inside holes.
- Toe-in—1 degree.
- Camber—2 degrees negative.

CENTER DRIVE-SHAFT ASSEMBLY

- For full-time, all-wheel drive, use the pin to lock the one-way system. Use this setup on most U.S. tracks to increase traction.

BATTERY POSITION

- On the passenger side, push the cells all the way forward; on the driver's side, push them forward until the opening edges are aligned.

REAR END

- Upper link—goes all the way into the hole.
- Shock setup—the same as that for the front end.
- Camber—1 degree negative.

THINGS YOU'LL NEED

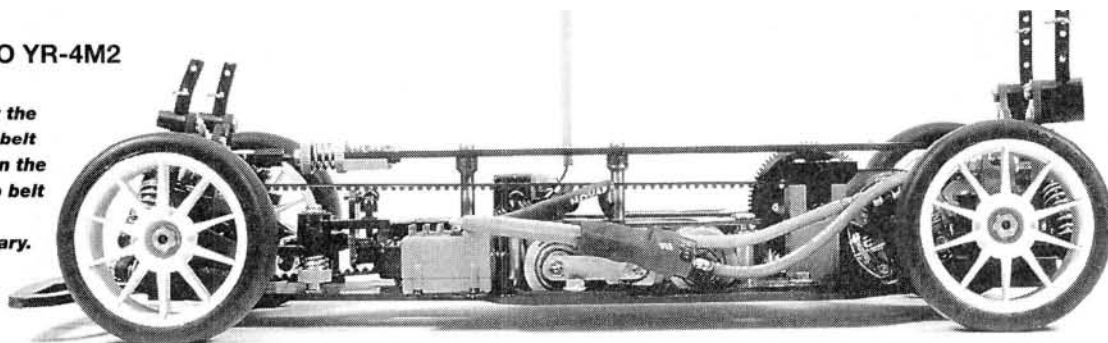
- 2-channel AM or FM radio system with one servo.
- ESC.
- Motor.
- Six-cell saddle pack.
- Battery charger.
- Body and paint.
- Silicone shock fluid (preferably 35WT).
- Basic modeling tools.

FACTORY OPTIONS

- Titanium turnbuckle kit—part no. ZC-TB20.
- Sponge bumper—ZR-001F.
- Aluminum ball stud—ZC-206S.

YOKOMO YR-4M2

Notice how the front drive belt rides low on the chassis. No belt tensioners are necessary.



drive system is ideal in high-traction situations. To transfer this power to the wheels, universal drive shafts in all four corners are standard.

In both the front and rear ends, the differentials are housed in new bulkheads that incorporate rigid graphite top plates. New graphite shock towers feature a

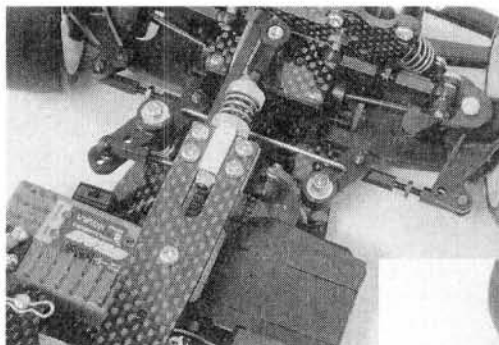
The weight distribution felt ideal because I had plenty of steering without sacrificing stability or traction.

choice of shock and camber-rod locations. The shocks, however, are exactly the same as those in the earlier YR-4M. To eliminate excess weight and preserve an overall low profile, the shocks are very small. The suspension arms, spindles and carriers seem to be made of a new material that is much stiffer than in earlier Yokomos. Another nice kit feature are the high-quality ball bearings throughout.

The supplied tires are Hot Laps narrow racing slicks and gray tire foam—an excellent selection for most tracks. The YR-4M2 doesn't come with a Lexan body; that choice is yours. I chose a Yokomo Nissan Skyline body and had it custom-painted by Andy Jacobson of Andy's Paint.

TEST GEAR

- Airtronics* Caliber 3PS.
- Airtronics high-speed, high-torque 94151 steering servo.
- Novak* new, top-of-the-line Cyclone programmable speed control.
- Novak mini FM receiver.



Left: the top plate uses a small coil-spring shock to provide the proper belt tension—another Yokomo exclusive. Yokomo's legendary drag-link bellcrank with built-in servo saver provides the perfect steering geometry.

Likes

- Assembly was simple and precise.
- High-quality materials were used throughout.
- The car was ready to race competitively right out of the box; no extras were needed.

Dislikes

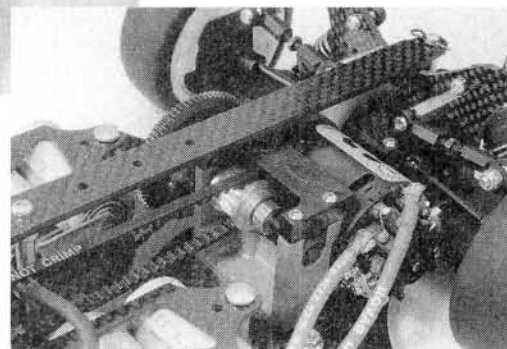
- Kit doesn't include silicone shock oil and turnbuckle adjustment wrench.
- I would like to see a racing setup sheet included.

- Reedy* Modifieds Mr. Y Tri Sonic (10T double) motor.
- 2000mAh Reedy* Zapper battery packs.

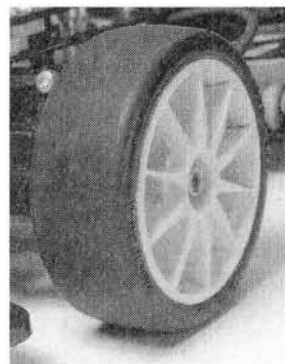
PERFORMANCE

After I had completed this hot-rod late one Friday night, I couldn't sleep because I was thinking about putting it through its paces during an extreme track test. My first destination was California's premiere asphalt roadcourse at Revelation Raceway. During the first battery pack, I took it nice

(Continued on page 192)



The center drive pulley is equipped with an adjustable one-way drive unit. To engage the one-way unit, remove a small pin; for full-time 4WD, leave the pin in place—very trick! Note the magnesium motor mount.



Yokomo's super-narrow spoked wheels and Hot Laps rubber slicks will grab all sorts of traction on chemically treated tracks.

The Competition

	HPI RS4 Pro	Roadrunner XPress	Kyosho TF-2 Type R	Schumacher SST 2000	Tamiya TA03F-Pro	Yokomo YR-4 M2	Tenth Technology Predator DTM	Tech Racing Voggerd
Wheelbase	10 in.	10.25 in.	10.19 in.	10 in.	10.1 in.	10.125 in.	10 in.	10.375 in.
Width (F/R)	7.25/7.125 in.	7.25 in.	7.38 in.	7.125 in.	7.19 in.	7.25 in.	7.25 in.	7.25 in.
Diff type (F/R)	Ball	Ball	Bearing/Ball	Ball	Ball	Ball	Ball	Ball
Chassis	Carbon fiber	Carbon fiber	Carbon fiber	Fiberglass	FRP**	Graphite	Nylon composite	G-10 fiberglass
List price	\$399	\$385	\$399.99	\$319.50	\$356	\$425	\$479	\$289.99
Available at*	\$239	\$225	\$299.99	\$190	\$199.99	NA	\$320	\$189
Reviewed in	9/97	4/97	1/97***	12/96	10/96	11/97	7/96	10/97

* Prices vary with location., ** Fiberglass-reinforced plastic., *** "Touring Car" Shootout.



PARMA by Greg Vogel

Dodge Viper GTS

s p e c i f i c a

SCALE 1/10
LIST PRICE \$124.95

DIMENSIONS
Length 13.5 in.
Wheelbase 10 in.
Width (F/R) 7.125/7.5 in.

WEIGHT (gross RTR) 2 lb., 9 oz.

CHASSIS ... G-10 fiberglass pan type

DRIVE TRAIN
Type Direct drive
Primary Pinion/spur
Transmission Steel axle
Differential Ball
Bearings/bushings Oilite bushings

SUSPENSION (F/R)
Type Floating-kingpin/coil-spring style/built-in chassis flex plate



HERE'S THE SCENARIO: you're behind the wheel of a new Dodge Viper GTS—one of the best-known and most exotic cars in the automotive industry. You fly down a straightaway at a blistering speed, boggling the minds of those you just left in the dust. You hit the brakes and send the car drifting through a corner, then you nail the throttle again to power out of the turn. Finally, you pull into the pits and raise the hood; your pit crew scrambles to check out the vacuum-molded Chrysler V-10 engine then throws in a freshly charged 7.2V battery pack to send you on your way!

Did I lose you? If you got lost in all the excitement, I was talking about Parma's* new Viper GTS R/C kit. As the photos show, it looks very much like its full-scale counterpart.

THE KIT

Beneath that beautiful body, we find Parma's simple Good Times chassis, which is used with many Parma kits. It's a basic design of fiberglass that has two

Super Sc



ONS

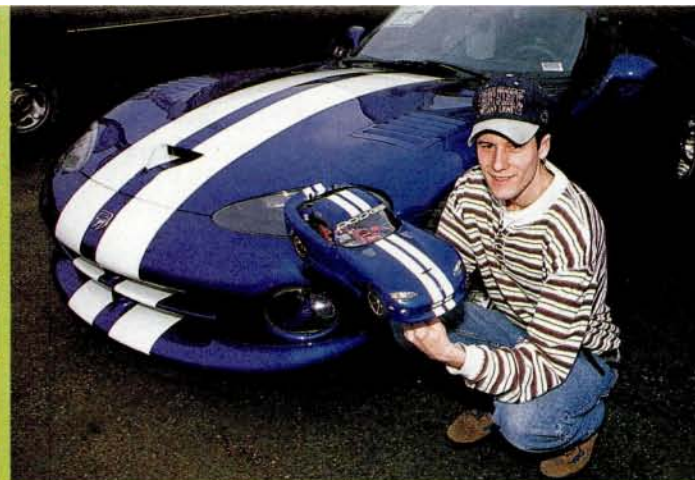
HEELS (F/R)One-piece
chromed plastic
mensions (DxW)
front1.875x1.125 in.
-rear1.875x2 in.

RES (F/R)Foam

ELECTRICS

otor, battery, ESCNot included

PHOTOS BY WALTER SIDAS



Above left: Parma's beautiful rendition of the Viper's engine bay adds to the scale charm of the kit. Above right: author Greg "Vogue"-el shows us how nicely Parma's kit replicates the imposing lines of the real GTS. (We managed to snap this photo before the tense-looking Dodge salesman shooed us away.)



slots cut into the rear to allow the rear pod a little flex—kinda like suspension. The aluminum motor pod supports a ball-diff-equipped axle and cool aluminum hubs. The battery is simply held on a Kydex plate with rubber bands. Up front on the sus-

pension plate, the steering blocks are damped by springs and turned by Z-bend tie-rods (supplied). On all four corners, foam tires are mounted on bright, shiny, 6-spoke chrome rims.

ale Snake

PARMA DODGE VIPER GTS

But the main attraction is the astounding, super-detailed body. The Parma Viper GTS takes Chrysler's supercar from the open road straight to a showcase in your house. Whether you race it or show it, the body looks good from any angle. To create this level of scale accuracy and enhance the fine details, Parma molded the Viper's Lexan body parts in sections—16 pieces in the GTSR racing version and 14 in the GTS street version (the kit includes all the pieces you need to complete either).

PAINTING AND DETAILING THE BODY

First, I washed all of the parts with a mild dish detergent and warm water, then I dried them with paper towels and I masked off the windows with the supplied pre-cut window masking tape. To improve the tape's fit to the rear-window curves, I trimmed it with a hobby knife. Next, I applied two coats of Parma liquid mask to the engine compartment, stopping at the edge of the windshield. I masked the tailpipes with regular masking tape. What about the racing stripes?—no masking required! Parma created flexible decals for the stripes and numbers. There are decals for the GTS and GTSR versions and Viper insignias to create your own paint scheme.

I opted for the GTS street scheme. I chose Pactra* True Blue Pearl airbrush paint as the main body color. Pactra's Sprint White behind it gives the body a

THINGS YOU'LL NEED

- 2-channel radio with one servo and receiver.
- Electronic speed control.
- Battery.
- Motor and pinion gear.
- Servo-saver.
- Paint and masking materials.
- Tools for car assembly and body detailing.

bright blue metallic look—the closest match to the real Viper's color without breaking out the color chart and custom mixing. After the paint had dried, I selectively removed the liquid masking so I'd be able to complete the body's details. Let's see: red for the engine, a little silver here and there and on the tailpipes, blue and white for the windshield-washer-fluid reservoir and voilà! It was starting to look really good.

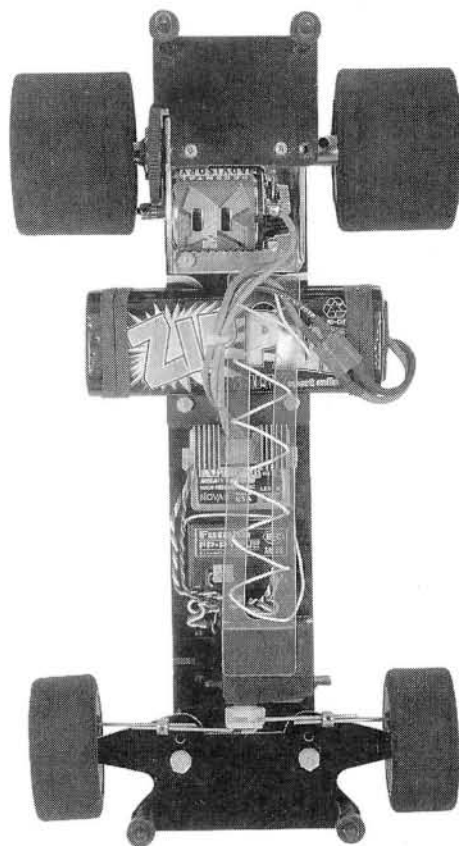
Finally, I removed the masking from the rest of the engine compartment and the rear window area and sprayed these areas black. Most people never spray black on as a final color for fear it may show through the lighter colors already applied. If, however, you applied the paint correctly and

it's opaque enough, black will not show through. But before you paint dark over light, you should hold the body up to a light to check the lighter paint's opacity.

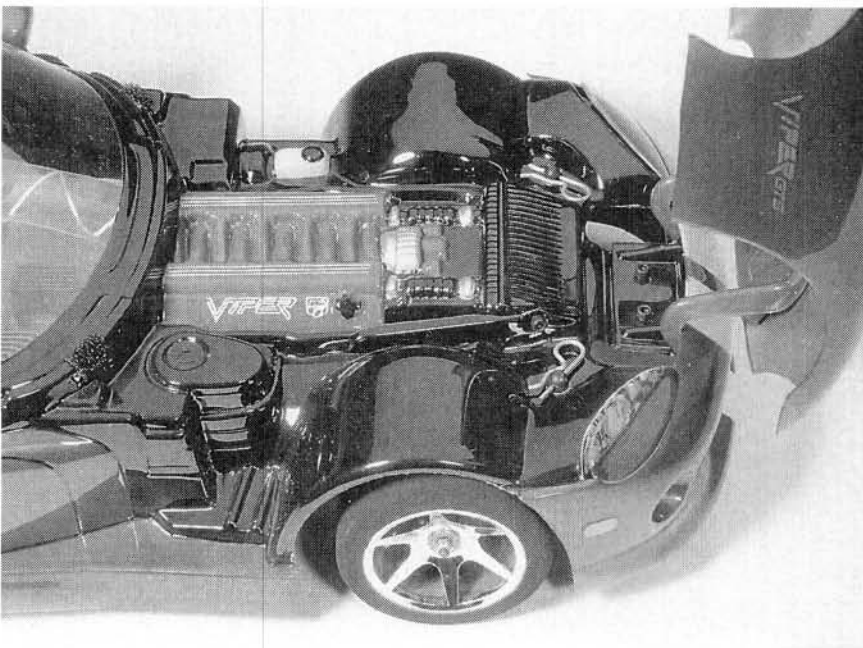
With the paint job complete, I cut out the body pieces with the usual tools—Lexan body scissors, a body knife and a Dremel* tool.

The decals were easy to apply. I cleaned some overspray off the body pieces with Trinity* Body Blast and then carefully applied the stripes and other decals as shown on the box. You may have to trim the stripes to match the curves on the windows. To finish the Viper off, I used a black detailing pen to outline the doors and make my Viper look more like the real thing.

The body parts are held together with tape and screws. I aligned the car's nose with the main part of the body by lining up the fender wells and headlights, then I joined the pieces with double-sided tape. I did the same at the rear: I simply lined up the top edge of the rear end and the fender well. I again used double-sided tape to secure the hood hinge to the hood and align it in the hood holders. It's handy to have a Dremel tool or a similar rotary tool to cut out the area for the hinge holders. Screw the hood into place, making extra sure that it is lined up correctly before you tighten the screws. The side mirrors were a little tricky; to make a left mirror bracket and a right one, you need to bend them appropriately before you can put the mirror plate in. For a more realistic look, I used some chrome tape for the mirrors. When the completed body is mounted, the only body clips visible on the outside are on the rear; the front clips are hidden beneath the hood, which in turn is held down by Velcro®-brand fastener.



Above: Parma's Good Times chassis is as rugged and simple as they come. Although it's no racer in the turns, this chassis can zoom the Viper up and down a parking lot. **Below:** now, this is what the Viper is all about: scale detail. Careful; the manifold is still hot after that blistering run. Note that the body clips are concealed when the hood is down. The fit and finish of the completed body panels are excellent.



PARMA DODGE VIPER GTS

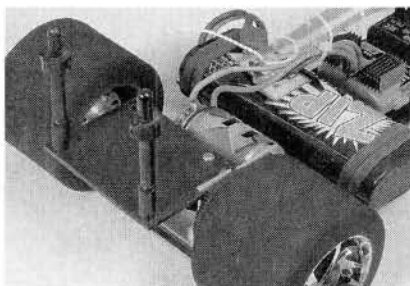
TEST GEAR

- Futaba* Sport radio with one S-148 servo and receiver.
- Novak* Explorer speed control.
- Trinity Zip pack.
- Trinity X-Star motor with 14-tooth pinion.

PERFORMANCE

Believe it or not, I actually ran this masterpiece! My first stop, however, was Southworth's Dodge in Kent, CT, where my good friend, general manager Jamie Williams, let me take some close shots of the Parma machine next to a real Viper GTS he had in stock. As you can see from the picture, the 1/10-scale replica looks awesome! I clicked off a few shots then split to try out this great American road machine (the R/C version, that is). For a simple chassis design, the car ran well. It

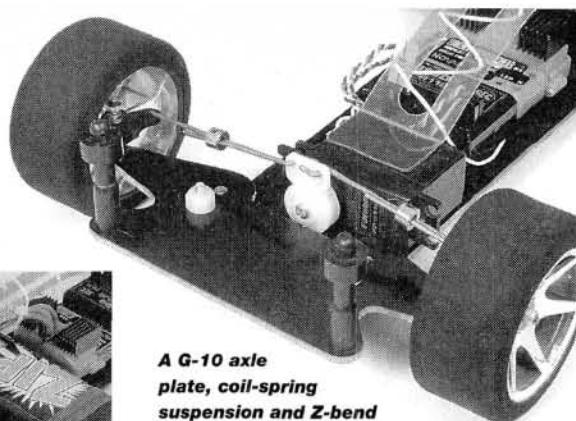
did spin out under acceleration, but I was able to correct this by loosening the diff a little more than usual. Once up to speed, the Viper flew.



The Good Times rear end features an aluminum pod. A couple of slots in the chassis plate form a T-plate, while a couple of rubber bands secure the pack. High tech it ain't; but reliable? You betcha.

FINAL THOUGHTS

As well as the adrenaline rush you get because of the Viper's speed when it flies by, it looks sooooo cool. When it was really movin', the car's incredible scale looks made me feel as if I had won the lottery and was able to buy a full-scale Viper GTS! That's the appeal of this Parma kit—the looks. Parma's Good Times chassis is not



A G-10 axle plate, coil-spring suspension and Z-bend linkages keep the Viper pointed in the right direction. The concealed antenna is a must; you don't want some way-outta-scale antenna tube poking out of that gorgeous, multi-piece body.

intended as a racing platform. Rather, it provides a rolling foundation for the very good-looking Viper body. But considering that the Viper retails for about 125 bucks (you can probably pick one up in a hobby shop for less than \$100, part no.—15150), you shouldn't expect to get a raceable chassis—unless you race against other Vipers! Overall, The folks at Parma have really outdone themselves with the Viper's clever design and stunning good looks.

**Addresses are listed alphabetically in the Index of Manufacturers on page 209.*



Likes

- **Highly detailed body; hood opens.**
- **Great to run and show.**
- **Chrome 6-spoke rims.**
- **Accurate decals make replicating the Dodge Viper easy.**
- **I can say I own a Viper!**



Dislikes

- **Servo-saver and pinion gear aren't included.**

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K O S E

Our newest Tamiya TA03F hop ups

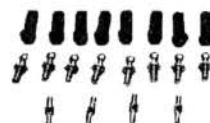
- | | |
|---|--|
| K-1260 hardened outdrives | K-1273 carbon rear shock mount (with new shock mounting holes) |
| K-1262 carbon chassis | K-1274 aluminum lightweight countershafts (F and R) |
| K-1263 carbon upper deck | K-1275 adjustable steering turnbuckle set |
| K-1264 super steering set | K-1276 super center shaft one-way set (dramatically improves steering) |
| K-1265 adjustable upper arm set (F and R) | K-1277 heavy duty spur gear (made of steel and aluminum) |
| K-1266 aluminum suspension arm set (F or R) | K-1278 super bulkhead support (F or R) (protects bulkhead from breaking) |
| K-1267 super aluminum upper arm set (F or R) | K-1279 aluminum motor mount plate |
| K-1269 super aluminum rear hub carrier | K-1280 aluminum pulley set (16T) |
| K-1270 steering gearbox post set (replaces plastic front steering bulkhead) | |
| K-1271 adjustable belt tensioner | |
| K-1272 carbon front shock mount (with new shock mounting holes) | |



K-1272



K-1266



K-1265



K-1270



K-1262

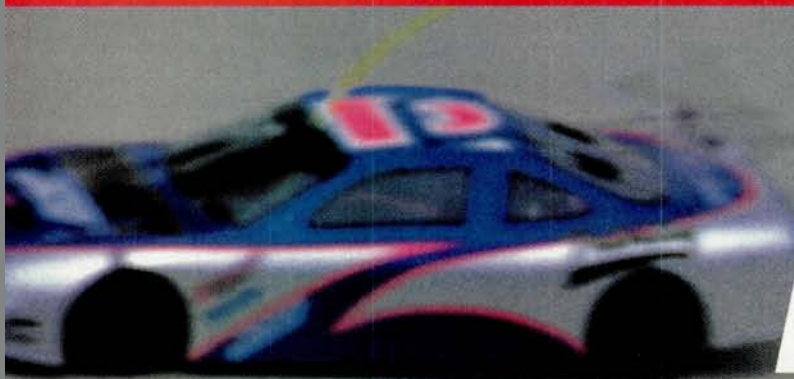


K-1263



K-1279

Car Action/Trinity Oval Shootout



The parade of cars was held right before the start of the Mains. Over 100 cars lined up—impressive!



OVER 100 of the fastest $\frac{1}{10}$ -scale oval racers in the country attended the Trinity/Car Action Oval Shootout at North Carolina's premier racing facility, King R/C & Superspeedway. The speeds and thrills of Winston Cup racing were evident even though the machines were scaled down in size.

scaling do

Photos & story by George M. Gonzalez



Ah, the bucket-of-ice-over-the-head play. The $\frac{1}{10}$ -scale Mod winner, Kirby Hand, gets doused, as you can see in this motor-drive sequence.

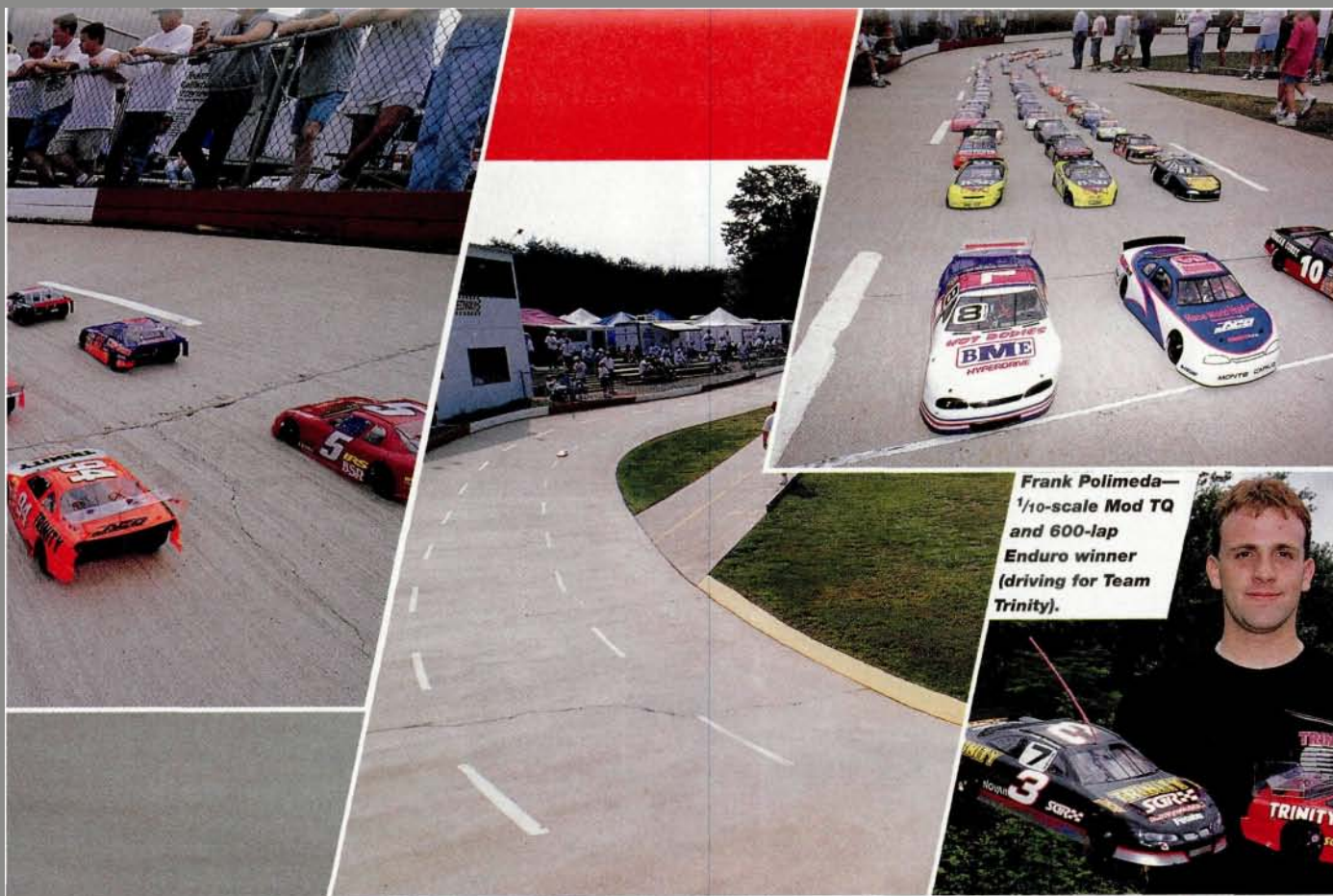


.00: water is heaved at Kirby.

.02: Kirby feels initial shock.

.04: Kirby gets full impact of icy drenching.

.06: "Chest pains! Call paramedi..."



Frank Polimeda—
1/10-scale Mod TQ
and 600-lap
Enduro winner
(driving for Team
Trinity).

win the Winston Cup

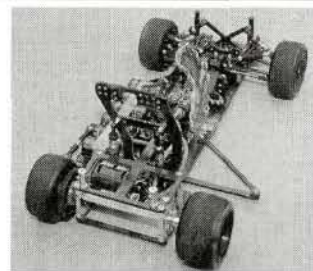
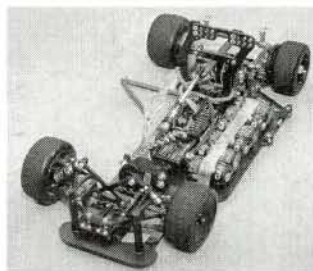


CAR ACTION/TRINITY OVAL SHOOTOUT

The five racing classes were for everyone from seasoned professionals to wet-behind-the-ears rookies. For experienced racers, 2WD Mod provided high-speed action and extremely close finishes. Races were won by super-narrow margins of $\frac{1}{100}$ second or less. The hour-long 600-lap Enduro race challenged the drivers' concentration and stamina and required lightning-fast battery-change pit stops.

The toughest class was probably 2WD Stock. Because the racers used handout motors, they had to find ways other than horsepower to increase speed. Their gearing, suspension setup and tire choices were paramount if they wanted to make the A-Main. The NASTRUCK class was highly competitive and offered plenty of excitement during the qualifiers and Mains. And what would a Trinity-sponsored event be without a special Street Spec class? Both first-time racers and experts found plenty of chills and thrills in this highly regulated class.

Home-Built Oval Chassis



Some people had to rough it while others had luxurious pit accommodations.



Here's a homebuilt oval racer. Full suspension, baby! This car—built by Tom Parish of Buffalo, NY, and owned by Jeff Carapellatta of North Carolina—is one of the five prototypes in existence. As you can see, the rear suspension uses vertically mounted shocks—just like a full-scale Winston Cup racecar. The front suspension has a pair of delta shocks mounted low to bring down the CG. Many of the suspension components are from a Trinity pan car, but the bulk of the chassis was made from scratch.

How did it work? Well, Jeff didn't actually race it because he was afraid of damaging it, but he did let TRC's Jim Dieter take it for a spin. I heard that he was so impressed that Jeff had a hard time getting his radio back. Thank God the batteries dumped, or Jim never would have returned it. I guess it worked pretty well.

THE ULTIMATE PIT SP



When you pull up the Team Serpent Network web site you pull into gas racing's ultimate pit space. Browse the on-line version of our 80-page, 200-photo Tech Book—a virtual gas car bible that puts 20 years of tuning know-how at your fingertips. Join the Cyber-Pit, a unique interactive web page where racers from around the world share tech information. Download our exclusive START datalogging software...for free. Or read the latest tuning tips in columns by the current World T.Q., the ROAR Champion, and other experts. TSN—get it dialed up, and get your car dialed in.





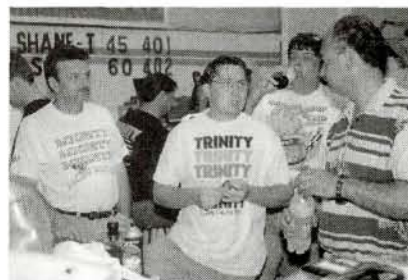
Eleven-year-old Mike Hampton (right) and his father/mechanic Terry. Without question, Mike was the fastest youngster at the event.

Young, but fast at heart

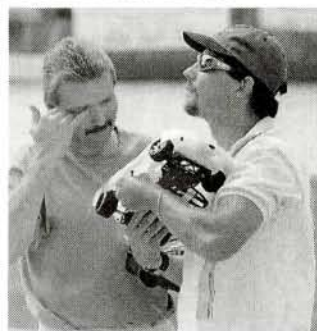
Eleven-year-old racer Mike Hampton from Fort Mill, SC, was by far the fastest youngster at the event. Heck, this kid wasn't just fast; he was ballistic! I couldn't believe my eyes when I looked up at the drivers' stand and realized that the driver of that 40mph modified missile making perfect lines was the kid standing on a soap box. I later found out that Mike started racing dirt oval cars when he was seven and has captured more than his fair share of championships



The legendary Tony Neisinger cleans up his car's body before the start of the next heat.



Team Trinity driver Mike Blackstock bench races with fellow drivers.



Patrick Kivin from Ballistic Batteries gets ready to set one of his drivers' cars on the track. This guy spent the entire week-end matching and rematching cells. What a guy!

over the last few years.

Terry Hampton (Mike's father) is his mechanic and pit man, and he enjoys bench racing with his son. Terry builds and maintains the cars, and Mike does the driving. According to Terry, Mike is a very intuitive driver and is able to communicate how the car feels on the track. This father-and-son team has been very successful, and they have an impressive résumé to prove it.

CE IS IN CYBERSPACE



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EXCITEMENT IN THE FAST LANE

Real Racing Roots

While I was cruising around the pit tables, I ran into Roman Pemberton, who happens to be the spotter/head mechanic for Rusty Wallace and the Miller Genuine Draft Winston Cup racing team. Roman's duties include building and maintaining the suspensions on the Miller Genuine Draft cars and designing new suspension systems for future team projects.

The Pemberton name is very familiar to Winston Cup fans; the three brothers have all been involved in NASCAR and Winston Cup racing most of their lives. Roman's older brother is the head mechanic for the Roush Racing Team, and his oldest brother is a broadcast journalist for TNN.

Roman enjoys the close competition and the technical aspects of R/C racing, and he



The spotter/head mechanic for the Miller Genuine Draft Winston Cup racing team, Roman Pemberton. He applies his full-scale racing knowledge to his 1/10-scale R/C car, and it really shows. This guy is fast!

believes that our little cars are just as high-tech as the oval cars that race in the Winston Cup series. In fact, he admitted that he wishes he could make the suspensions on

his full-size cars work as well as the ones on his model cars. After all, R/C oval cars can attain scale speeds in excess of 400mph. "I wish I could design a real car that could tackle a banked corner at 400mph," he said.

Roman is also a very talented R/C racer and a heck of a nice guy. He was the top qualifier in the Modified B-Main and missed qualifying for the A-Main by a fraction of a second (Mike Blackstock qualified 10th in the A-Main, and this bumped Roman into the B-Main). I asked Roman why he didn't enter the 600-lap Enduro race, and he told me that he couldn't race in it because he was the spotter/pit man for one of the contestants. Go figure! Overall, he takes R/C racing very seriously and has a blast with his hobby.

Winners

1/10-Scale Pan Car

Fin.	Qual.	Driver	Chassis	Motor	Battery	ESC	Radio	Body	Tires(F/R)	Traction Additive	Pinion/Spur
1	4	Dennis Lambert	Associated	Handout	Eastcoast	Tekin	Futaba	Bolink	BSR	NA	NA
2	2	Andy McClellan	Dillon	Handout	Ballistic	Tekin	Futaba	Bolink	BSR	Sure Grip	NA
3	6	Mark Aldrich	Wood	Handout	GM Racing	Tekin	Futaba	Protoform	TRC	NA	39/120
4	10	Mike Tapler	Hyperdrive	Handout	PTI	Tekin	Futaba	Bolink	BSR	Sure Grip	37/108
5	3	Marc Fryar	Hyperdrive	Handout	Trinity	Tekin	Futaba	Protoform	BSR	Sure Grip	35/108
6	9	Henry Hobaugh	Hyperdrive	Handout	Front Line	Novak	Futaba	Bolink	BSR	NA	38/110
7	8	Steve Rule	Bolink	Handout	Extreme	Novak	JR	Bolink	Jaco	NA	34/112
8	5	Chris Rhinehart	Trinity	Handout	Trinity	Tekin	Futaba	Protoform	Jaco	NA	37/108
9	1	Frankie Everhart	NA	Handout	NA	NA	NA	NA	NA	NA	NA
10	7	Rick Talbot	Wood	Handout	Ballistic	Tekin	JR	Protoform	Jaco	NA	39/120

1/10-Scale Modified

1	2	Kirby Hand	Associated	Eastcoast	Eastcoast	Tekin	Futaba	Bolink	BSR	Sure Grip	29/120
2	1	Frank Polimeda	Trinity	Trinity	Trinity	Novak	Futaba	Protoform	Jaco	NA	NA
3	5	Richie King	Dillon	Eastcoast	Eastcoast	Tekin	Futaba	Bolink	BSR	Sure Grip	NA
4	6	Steve Fiume	Hyperdrive	Mighty Mods	Sanyo	Novak	Futaba	Protoform	Jaco	NA	28/120
5	3	Matt Rogers	TRC	Mighty Mods	PTI/Ballistic	Tekin	JR	Protoform	TRC	NA	28/120
6	4	Gary Warren	Hyperdrive	Mighty Mods	PTI/Ballistic	Tekin	Futaba	Protoform	Jaco	NA	NA
7	9	Sean Cochran	RACEtech	Velocity Mods	RACEtech	LRP	JR	Protoform	Jaco	NA	32/124
8	7	Matt Mrosek	Associated	Eastcoast	Eastcoast	Tekin	Futaba	Bolink	BSR	Sure Grip	29/120
9	8	Tony Neisinger	Associated	Eastcoast	Orion	Tekin	Airtronics	BSR	BSR	Sure Grip	30/120
10	10	Mike Blackstock	Trinity	Trinity	Trinity	Tekin	Airtronics	Protoform	Jaco	NA	29/120

NASTRUCK

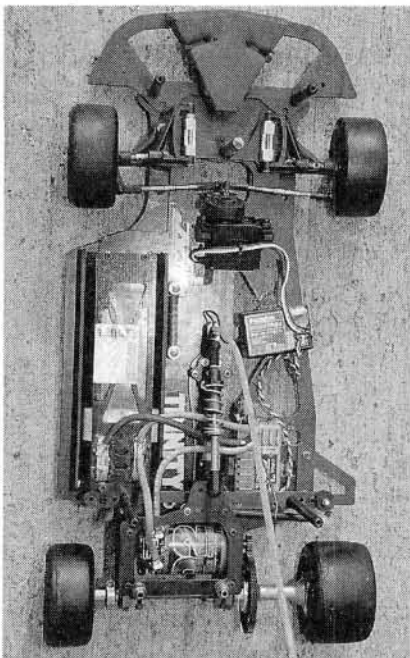
1	2	Larry Moore	TRC	Handout	Trinity	Tekin	Futaba	Protoform	BSR	Luke Juice	34/108
2	3	Ron Mick Jr.	Hyperdrive	Handout	Perfect Match	Novak	Futaba	Parma/PSE	BSR	NA	36/108
3	5	Clayton Jennings	Associated	Handout	B&T	Novak	KO Propo	NA	BSR	Trinity	35/110
4	8	Sam Cosemano	Associated	Handout	Litespeed	Tekin	Futaba	Hot Bodies	BSR	NA	38/112
5	9	David Irrgang	Parma/PSE	Handout	XIPP	Novak	Futaba	Parma/PSE	Jaco	NA	38/112
6	10	Richard Carden	NA	Handout	NA	NA	NA	NA	NA	NA	NA
7	7	Doug McCallum	Wood	Handout	Excell	Tekin	Futaba	Parma	TM Racing	NA	40/120
8	1	Mike O'Brien	Wood	Handout	Eastcoast	LRP	Futaba	Parma/PSE	Jaco	NA	38/108
9	6	Larry Boyd	Wood	Handout	Racetech	Novak	Futaba	Parma/PSE	Jaco	NA	NA
10	4	Roger Douglas	Associated	Handout	Eastcoast	Novak	JR	Protoform	BSR	BSR	39/112

Street Spec

1	1	Steve Wilhelm	TRC	Street Spec	Street Spec	Novak	Airtronics	Bolink	BSR	Zip Grip	32/120
2	3	George Verbonitz	Trinity	Street Spec	Street Spec	Trinity	JR Propo	Bolink	Street Spec	Zip Grip	32/120
3	5	Daryl Neve	NA	Street Spec	Street Spec	NA	NA	NA	NA	NA	32/120
4	8	Steve Harelerode	TRC	Street Spec	Street Spec	Novak	JR	Bolink	BSR	Zip Grip	32/120
5	2	Kevin Griffe	NA	Street Spec	Street Spec	NA	NA	NA	NA	NA	32/120
6	7	Greg Blankenship	NA	Street Spec	Street Spec	NA	NA	NA	NA	NA	32/120
7	9	Chris Glover	NA	Street Spec	Street Spec	NA	NA	NA	NA	NA	32/120
8	4	Bill Pritchard	NA	Street Spec	Street Spec	NA	NA	NA	NA	NA	32/120
9	6	Myron Rote	TRC	Street Spec	Street Spec	Schumacher	Futaba	TRC	BSR	Zip Grip	32/120
10	10	John Harrison	NA	Street Spec	Street Spec	NA	NA	NA	NA	NA	32/120



Trinity driver Frank Polimeda helps a fellow driver get dialed.



Frank Polimeda's Enduro-race-winning Trinity Switchblade 10SS (modified with a quick-change battery box).

600-lap Enduro results

Fin.	Driver
1	Frank Polimeda
2	Shane Kocher
3	Kirby Hand
4	Bob Smith
5	Gary Warren
6	Matt Mrosek
7	Phil Asseff
8	Tony Neisinger
9	Richie King

Three qualifying rounds were held on Saturday, and a fourth, final round was run on Sunday after the heats had been shuffled so that the drivers didn't have to race the same people again. Also, a single qualifier was held on Saturday to determine the starting order of the 600-lap Enduro, which took place that evening. Just before the start of the Mains, all the drivers lined their cars up for the traditional parade of cars. This was quite a sight. The 100-plus cars covered a large

New In The Pits



• **Irrgang Racing Service* (IRS)** Here are a few items that were designed to shed weight from your car while maintaining strength and rigidity. Shown at left are the new 1.4- and 1.9-inch shock extensions for large delta shocks (part nos. IRS350—1.4-inch; IRS351—1.9-inch). They replace the stock shaft end and extension tube with a solid, machined, aluminum piece to increase strength. IRS's race-proven fiberglass shaft axle is now available for the Associated RC12LW and RC12LC that use Associated's Stealth diff rings (IRS109, shown in center). The fiberglass shaft goes all the way through the diff bearing, and the company includes one of their superlight diff cones to make diff adjustment easier and more precise. That's not all: IRS also redesigned their 1/10- and 1/12-scale clamp hubs (IRS216—1/12-scale clamp hub; IRS217—1/10-scale clamp hub, shown on right). They're now even lighter than before. The 1/10-scale hub is the thinnest available and was designed to be used in extreme-offset pod cars. The clamp has less than 1/4 inch offset but is still strong enough for racing. The 1/12-scale hub fits both standard wheels and Associated's new Stealth II rear wheels and is as light as it can be (not intended for the RC12LC).

• **Wolfe Motorsports*** Budde Wolfe from Wolfe Motorsports was kind enough to show me some new products.

The first is the Pro-Baby Bubba Spring Set (10-410, shown on right). It includes springs in four sizes to allow you to dial in your car for any track.

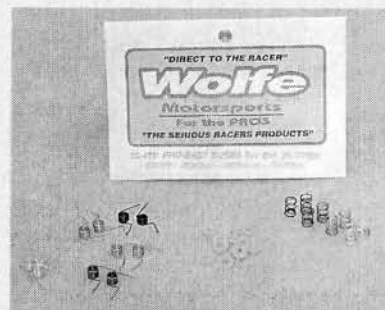
The Pro Alignment Bushings (10-98, shown in center) help center the coil springs on the kingpin for more consistent damping. The Motor Spring Set (160-105, shown on left)

includes five springs of different rates for your motor tuning needs.

• **Power Surge*** Want to go fast? Then check out these products from Power Surge. The new "Red" firm motor springs (PS2, shown top left) are the ticket for fine-tuning modified motors to achieve higher rpm. The medium, silver, hollow laydown brushes (043,



shown top right) are the perfect choice for stock racing on high-banked ovals. Running bushings in your Street Spec car? Then you need Power Surge's Blue Magic Oil (shown bottom left). Make those wheel bushings perform like bearings, and don't forget to lube your motor bushings, too. The company's Smooth Lube (bottom right) is the only



PTFE-based bearing lube available. This stuff is slippery, folks, and it will make your bearings spin like never before.

section of the track. Many were painted exactly like the full-scale Winston Cup cars, but most had their own team theme.

FINAL THOUGHTS

The Trinity/Car Action Oval Shootout was a great success. The folks at King R/C & Superspeedway are serious about oval racing and know how to run a successful program. We thank Trinity for their generous sponsorship and congratulate all the talented drivers who showed up on

the top of the A-Main roster. We also congratulate all the contestants, regardless of how well they did in the Mains. To be a winner, you don't have to take home a trophy. The true winners are those who enjoyed themselves even when the going got rough. Hey, R/C racing is all about having fun, right?

*Addresses are listed alphabetically in the Index of Manufacturers on page 209.

ROAR Off-Road Modified Nationals

The large drivers' stand offered a great view of the track. You could see it even better from the second-floor pit area, if you could stand the 100-plus-degree heat.

g, inc.
etracks
Modified Nationals

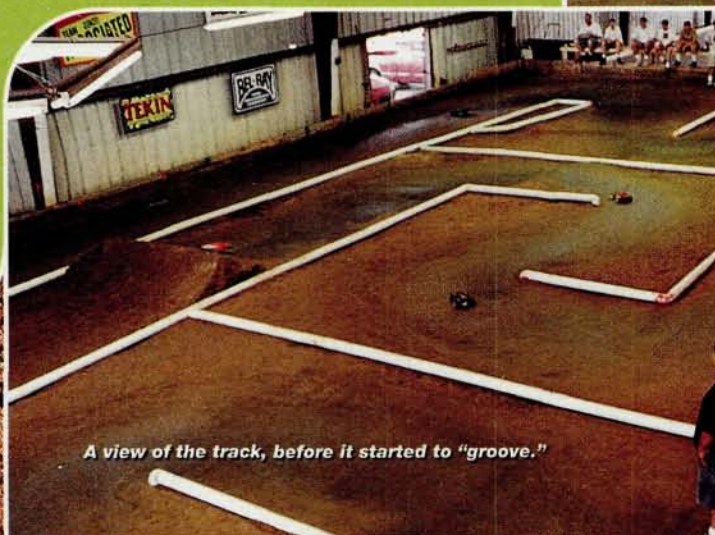


Brian Kinwald turned the 1997 Nationals into a "Benefit Race for Brian." Brian not only TQ'd the 2WD, Truck and 4WD classes, but also won all three classes with his Losi vehicles, which were powered by Trinity and ran on Losi and Pro-Line tires.

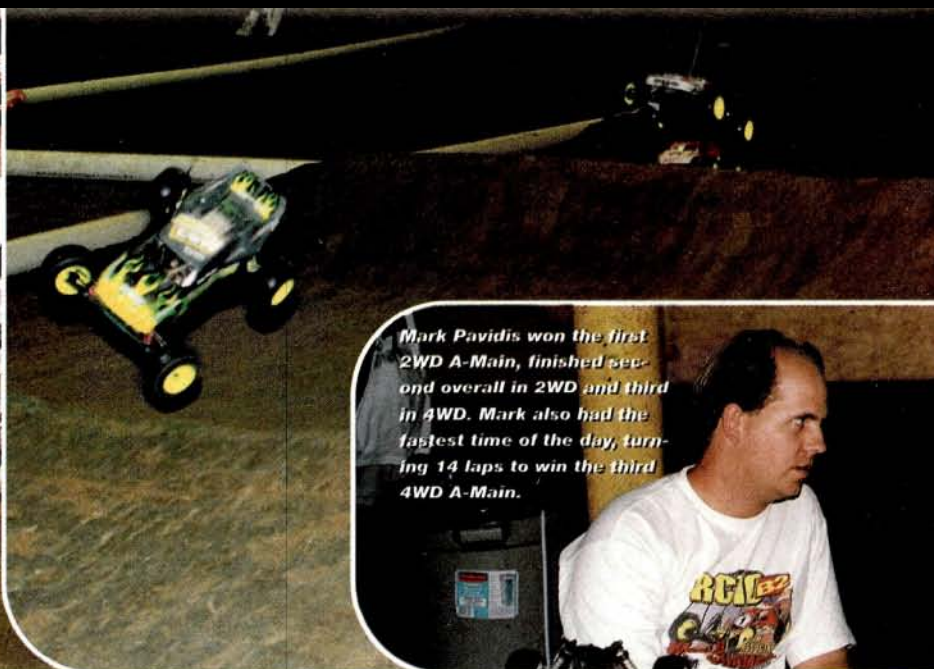
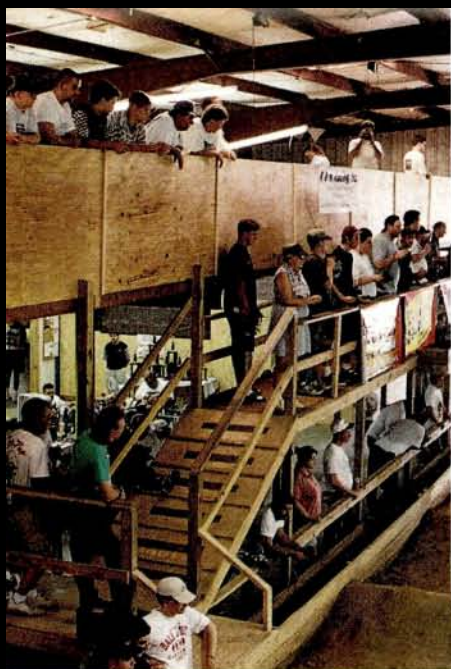
K & M Raceway in Houston, TX, hosted this year's Off-Road Modified Nationals. Tom Keller and Brent Mahaffy own this indoor raceway, and they've put an awful lot of time and money into preparing for this event. They have a great track with a lot of pit area.

The weather for the event was hot: 93 degrees outside, with 88-percent humidity; 100 degrees inside, in the pit area; and 110 in the upstairs pit. These temperatures made conditions inside rather miserable, but the racing was equally hot.

Most of the drivers arrived at the track for practice on Tuesday. Each driver received four rounds of qualifying in 2WD, Truck and 4WD. In an effort to eliminate the problem of a single fast round, ROAR has changed to a system of "best of two rounds of qualifying," instead of the usual single round of qualifying. It now pays to be consistently fast.



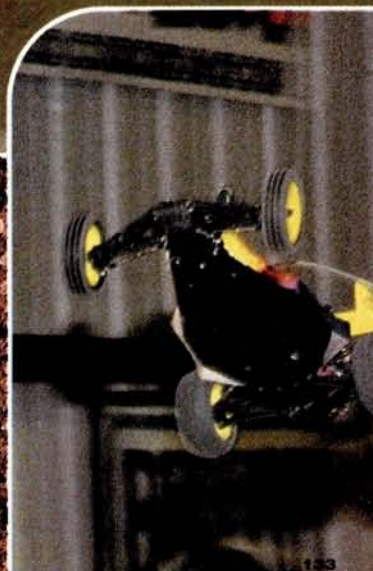
A view of the track, before it started to "groove."



by the R/C Car Action staff



**Maddest
Mods
Duke It
Out!**



PHOTOS BY GENE HASTING

ROAR OFF-ROAD NATS

QUALIFYING 2WD

Mark Pavidis led the first round of qualifying, turning 13 laps in 4 minutes, 9.10 seconds, or 13/4.09.10, with Brian Kinwald just 2 seconds behind and taking second with 13/4.10.95. Mark was on a faster TQ run in the second round, after five laps, when his endbell came off. Brian won the next three rounds with 13/4.10.24, 13/4.12.73 and a TQ time of 13/4.06.25.

MODIFIED TRUCK

Brian Kinwald was in a class by himself here. He won four rounds with a TQ time of 13/4.04.92, just 1 second faster than his 2WD time. He seemed to have found a better tire-traction additive for his Pro-Line tires than anyone else. After Brian, the qualifying was really close, with six drivers within 1 second of each other. Hodapp was next-quickest with 13/4.11.27, then Pavidis with 13/4.11.31, Gabe Boudreau with 13/4.11.75, Mark Francis at 13/4.11.90, Scott Brown with 13/4.12.16 and Brian Dunbar with 13/4.12.38. That's about as close as it can get.

4WD MODIFIED

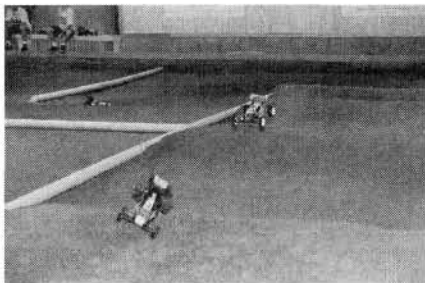
The only two drivers to turn 14 laps were TQ Brian Kinwald with 14/4.16.54 and Gabe Boudreau close behind with 14/4.16.92. There were more than the usual number of 4WD cars, thanks to Losi's new XX-4 car.

MAINS 2WD A-MAIN NO. 1

The drivers were introduced to the large crowd, the cars lined up on the straightaway, the horn sounded and we were under way. Brian Kinwald and Mark Pavidis made it cleanly around the tight, 180-degree pipe turn at the end of the straightaway and started to pull away from everyone else.

Brian was running perfectly, but so was Mark, who stayed just 2 to 5 feet behind Brian. Then, as they completed the second lap down the straightaway and around the second corner, Brian suddenly pulled wide and let Mark go by.

I thought: wait a minute, that's not something Brian would do, to let Mark lead. He gladly moved ahead, but Brian didn't follow; he just parked it! Nobody knew what was happening. After the race, I asked Brian, "What happened?" He said,



The double-double jumps seemed easy enough when done correctly, but if your timing was off—even just a little—you were in trouble.

"My batteries must have false peaked!" Unbelievable!

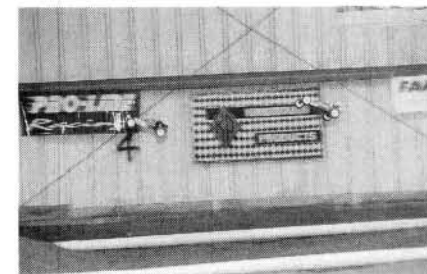
Mark now had a full straightaway lead over Chris Bing, with Mark Francis in a battle for third with Greg Hodapp. With a couple of laps to go, Greg got by Francis to take third.

2WD A-MAIN NO. 2

As the horn sounded, the cars took off. Greg Hodapp took a very tight line around the pipe and made a clean pass on Mark Pavidis to move into second. But after the next turn, he lost it over the double jumps, and everyone passed him. In the confusion, Chris Bing took over second, with Brian Dunbar in third and Mark in fourth. Kinwald now had a straightaway lead over Bing, who got stuck, with Dunbar, Mark and Hodapp going by. Mark was all over Dunbar trying to find a way past, but Dunbar was driving a good, tight line. Then, Mark tried to make a tight pass at the end of the straightaway but caught the pipe, and Hodapp moved into third. Brian nailed the win, with Dunbar and Hodapp in tow.

2WD A-MAIN NO. 3

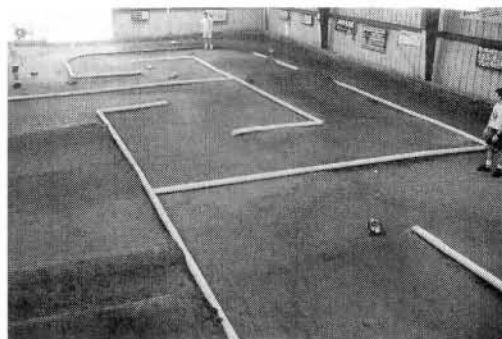
Brian and Mark took off together again, with Mark just a few feet behind Brian. In an effort to make an inside pass on Brian down the straightaway, Mark clipped the inside pipe at a joint, which caught the car and sent it rolling down the straightaway. Dunbar, Hodapp and Mark Francis went by to take over second, third and fourth. Then, in some of the best racing of the day, Mark Francis and Hodapp swapped places four or five times, until Hodapp went sideways



The big jump was really tough on cars. It was not uncommon to see the whole rear motor plate with the motor break away from the chassis on landing. Motor endbells came off some cars, too.

off the big jump and Francis went by, chasing Dunbar.

Then, just as Francis caught Dunbar, it was Dunbar's turn to get sideways off the big jump and tie up Francis and Mark, leaving Scott Brown to drive around the pileup to take second.



The K&M track required hardly any maintenance; the humidity prevented it from drying out. It not only got to the "blue groove" level, it went well beyond that to the "black groove" level. This is the first time I've ever seen a totally black, grooved track. In the foreground, you can see the "double-double" jumps, right below the drivers' stand. You can also see the "big jump" toward the top center of the photo.

4WD A-MAIN NO. 1

Gabe Boudreau got a great launch at the start but to keep from hitting Brian Kinwald, had to hit the brakes going into the first corner. Because of this, everyone behind Gabe got all tangled up at the start.

Brian had the lead, with Boudreau in second and Alex Guerrero in third. On the third lap, Guerrero passed Boudreau, who then immediately passed Guerrero to reclaim second.

Pavidis got stuffed in the first corner but was making up time fast, and now he was right behind

Guerrero looking for a way around. At last, he made an outside pass to take over third. Then Pavidis caught Boudreau over the big jump, passed him but rolled over, and Boudreau moved back into second. Pavidis was right on Boudreau's bumper but couldn't find a spot for a clean pass.

4WD A-MAIN NO. 2

Kinwald got away cleanly, but Mark Pavidis got rolled over in the second corner, with Guerrero going into second followed by Boudreau and Pavidis. Boudreau and Pavidis got by Guerrero, but then Pavidis got hung up on a pipe and lost a few places. Kinwald cruised in for the win and took the championship.

4WD A-MAIN NO. 3

Kinwald chose not to run this race, which turned out to be the best race of the day and the fastest. Boudreau took the lead, with Pavidis right behind. Boudreau was going fast and driving perfectly; Pavidis just couldn't find a spot for a clean pass.

ROAR OFF-ROAD NATS

Then, on the fifth lap, Boudreau went high in the sweeper, and Pavidis went past to take the lead. But Boudreau wasn't giving up. He caught up to Pavidis again and made a clean, inside pass coming off the big jump to retake the lead.

Two laps later, Boudreau rolled off the big jump, and Pavidis again took the lead. Boudreau was trying hard to catch Pavidis now, but he ended up rolling it coming onto the straight, which gave Pavidis a big lead. In winning one of the most exciting races of the day, Pavidis was also the only driver of the day to turn 14 laps.

TRUCK A-MAIN NO. 1

Kinwald took the lead, with Hodapp close behind. Then Hodapp rolled it off the big jump and gave Kinwald a big lead. Hodapp recovered and then shortly afterward, he and J. R. Mitch tangled right before the big jump, moving Mitch to second, with Gabe Boudreau taking third and Barry Baker fourth. Then Mitch had a problem, so Boudreau and Baker moved to second and third.



He not only looks out of shape, he's actually way out of shape.

TRUCK A-MAIN NO. 2

Brian Kinwald and Greg Hodapp got away cleanly and gained a big lead, when six trucks became entangled in the second corner. Mark Pavidis and Mark Francis came out third and fourth. Then Pavidis got stuck on a pipe, with Francis moving to third. The leaders held their positions to the finish.

TRUCK A-MAIN NO. 3

Without Brian Kinwald in this race (he had already clinched the overall win), it was close and competitive. Hodapp took

off in the lead, followed by Brian Dunbar and Barry Baker. They were together for three laps until Dunbar made an inside pass on Hodapp to take the lead.

Dunbar then rolled off the big jump, and Hodapp retook the lead. Two laps later, Dunbar rolled off the big jump again, and Baker got by to take over second. Baker was gaining on Hodapp and was just five feet behind when Hodapp rolled off the big jump, and Baker took the lead. On the last lap, just when it looked like Baker had it won, he went too wide over the double-doubles, and Dunbar took the lead and the win. It was four minutes of great racing.

FINAL THOUGHTS

The Mod Nats were great for Brian Kinwald, but he wasn't the only one smiling. When the best of the best get together to race, everybody has a great time! Full-scale or 1/10-scale racing is the greatest show on Earth. A round of applause for ROAR, Brian and all who competed! ■

Winners

2WD Modified

Fin.	Name	Chassis	Motor	ESC	Tires(F/R)
1	Brian Kinwald	Losi Double-X 'CR'	Trinity 13 x 6	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie
2	Mark Pavidis	Associated RC10B2	Reedy 11 x 2	LRP IPC	Pro-Line 2.2/Square Fuzzie
3	Greg Hodapp	Losi Double-X 'CR'	Trinity 13 x 6	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie
4	Brian Dunbar	Losi Double-X 'CR'	GM 13 x 3	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie
5	Scott Brown	Losi Double-X 'CR'	Trinity 13 x 5	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie
6	Mark Francis	Associated RC10B2	Reedy 11 x 2	LRP IPC	Pro-Line 2.2/Square Fuzzie
7	Chris Bing	Losi Double-X 'CR'	Trinity 14 x 6	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie
8	Sohrab Tavakoli	Losi Double-X 'CR'	Trinity 13 x 5	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie
9	Matt Ledger	Associated RC10B2	Reedy 14 x 2	LRP IPC	Pro-Line Edge/Square Fuzzie
10	Chris White	Losi Double-X 'CR'	Peak 12 x 3	Novak Cyclone	Losi Wide Body (Silver)/Pro-Line Square Fuzzie

Modified Truck

Fin.	Name	Chassis	Motor	ESC	Tires(F/R)
1	Brian Kinwald	Losi Double-XT 'CR'	Trinity 11 x 2	Novak Cyclone	Losi Directionals (Silver)/Pro-Line Square Fuzzie
2	Greg Hodapp	Losi Double-XT 'CR'	Trinity 11 x 2	Novak Cyclone	Losi Directionals (Silver)/Pro-Line Square Fuzzie
3	Barry Baker	Associated RC10T3	Maxtec 10 x 3	LRP IPC	Pro-Line Edge/Square Fuzzie
4	Brian Dunbar	Losi Double-XT 'CR'	GM 12 x 3	Novak Cyclone	Losi Directionals (Silver)/Pro-Line Square Fuzzie
5	Gabe Boudreau	Losi Double-XT 'CR'	Trinity 12 x 3	Novak Cyclone	Losi Directionals (Silver)/Pro-Line Square Fuzzie
6	Matt Lee	Losi Double-XT 'CR'	Peak 14 x 4	Tekin G2	Losi Directionals (Silver)/Pro-Line Square Fuzzie
7	J.R. Mitch	Losi Double-XT 'CR'	Trinity 13 x 2	Novak Cyclone	Losi Directionals (Silver)/Pro-Line Square Fuzzie
8	Mark Francis	Associated RC10T3	Reedy 10 x 2	LRP IPC	Pro-Line Edge/Square Fuzzie
9	Scott Brown	Losi Double-XT 'CR'	Trinity 12 x 5	Novak Cyclone	Losi Directionals (Silver)/Pro-Line Square Fuzzie
10	Mark Pavidis	Associated RC10T3	Reedy 10 x 2	LRP IPC	Pro-Line Edge/Square Fuzzie

4WD Modified

Fin.	Name	Chassis	Motor	ESC	Tires(F/R)
1	Brian Kinwald	Losi XX-4	Trinity 11 x 2	Novak Cyclone	Losi X-2000/Pro-Line Square Fuzzie
2	Gabe Boudreau	Losi XX-4	Trinity 11 x 3	Novak Cyclone	Losi X-2000/X-2000
3	Mark Pavidis	Yokomo	Reedy 11 x 2	LRP IPC	Pro-Line Square Fuzzie/Square Fuzzie
4	Alex Guerrero	Losi XX-4	Maxtec 12 x 2	Novak Cyclone	Losi X-2000/Pro-Line Square Fuzzie
5	Sohrab Tavakoli	Losi XX-4	Trinity 11 x 2	Novak Cyclone	Losi X-2000/Pro-Line Square Fuzzie
6	Barry Baker	Yokomo	Maxtec 10 x 3	LRP IPC	Pro-Line Square Fuzzie/Square Fuzzie
7	Matt Francis	Losi XX-4	Trinity 11 x 2	LRP IPC	Losi X-2000/X-2000
8	Quincy Hughes	Losi XX-4	Peak 10 x 3	Novak Cyclone	Losi X-2000/X-2000
9	Chris Bing	Losi XX-4	Trinity 12 x 5	Novak Cyclone	Losi X-2000/X-2000
10	Chris White	Losi XX-4	Peak 11 x 6	Novak Cyclone	Losi X-2000/Pro-Line Square Fuzzie

WHAT'S new



AIRTRONICS CX2P 2-Channel Radio System

With many of the same great features as the Caliber 3Ps, the CX2P is a versatile, fast-response radio for all track conditions. Its ARC allows you to control oversteer and understeer, and it also features: servo-reversing; variable, dual-rate steering; left- or right-hand operation; a low-voltage alarm; sensitive, adjustable throttle action; and adjustable trim rate and throttle response for changing track conditions. This radio is available on 27MHz and 75MHz; both feature a race-proven FM receiver and removable Caliber RF module.

Part no.—90220FM;
price—\$295.95.

Airtronics Inc., 15311 Barranca Pky., Irvine, CA 92718; (714) 727-1474; fax (714) 727-1962.



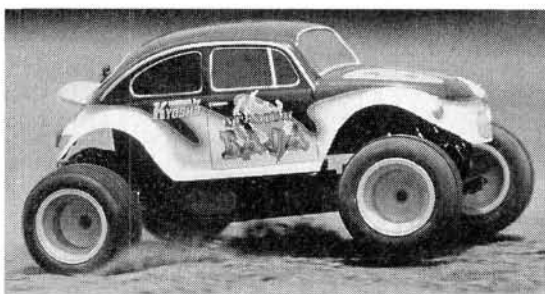
TRINITY

GT-1 and GT-2 Motors

Specifically designed for touring-car racing, the GT-1 is a ball-bearing modified motor with adjustable timing, and the GT-2 is a replacement high-speed bushing motor with 15-degree timing. Both have four winds to choose from, 5.4 wet magnets, a removable endbell, and high-performance brushes and springs.

Part nos. and prices—GT1-409 (9-turn quad), \$49.99; GT1-410 (10-turn quad), \$49.99; GT1-312 (12-turn triple), \$49.99; GT1-214 (14-turn double), \$49.99; GT2-411 (11-turn quad), \$32; GT2-413 (13-turn quad), \$32; GT2-415 (15-turn quad), \$32; GT2-317 (17-turn triple), \$32.

Trinity Products, 1901 E. Linden Ave., #8, Linden, NJ 07036; (908) 862-1705; fax (908) 862-6875.



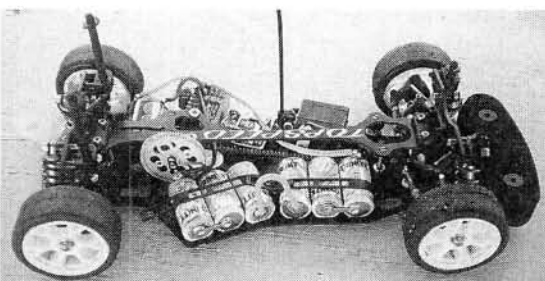
KYOSHO

1/10-Scale Stadium Baja Beetle

Ideal for beginning off-road racers, the Beetle is just as at home in the backyard as it is on the rough stuff. The Lexan body tops a Keltron™ chassis with a durable, sealed diff box. The wide track and big 4-inch tires keep the Beetle running over most obstacles, and the oil-filled shocks and double-wishbone suspension smooth the ride. Its parts are compatible with those in all other Outrage series vehicles.

Part no.—KYOC0197; price—\$139.99.

Kyosho; distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021; (217) 398-6300; fax (217) 398-0008.



SCHUMACHER

SST 2000 Side-Saddle Chassis and Top Plate

Boost your SST 2000's on-road performance by redistributing weight with this side-saddle chassis and thin top plate. Repositioning the batteries moves the weight forward slightly and improves high-speed steering. Battery changing is easier, and the motor and gears are more accessible. The top plate is lighter than the stock unit and allows the chassis to flex slightly; this makes the car setup less critical when you run on rough pavement.

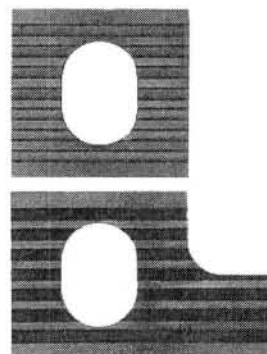
Part nos. and prices—U2027 (chassis), \$27.50; U2029 (top plate), \$12.95.

Schumacher Inc., 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634; (813) 889-9691; fax (813) 889-9593.

HPI

Heat Sink Engine Mount

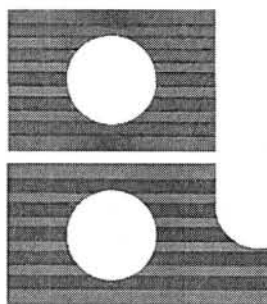
These aluminum heat-sink mounts for the Nitro RS4 have been anodized to match other optional Nitro RS4 parts distributed by HPI. Fins dissipate heat



faster and the mounts are longer to improve engine stability. Available for pull-starter and non-pull-starter engines (non-pull-starter requires the use of 15mm mounts and HPI's A926 flywheel).

Part nos.—A915 (pull-starter), A920 (non-pull-starter); price—\$45.

HPI Racing, 15321 Barranca Pky., Irvine, CA 92618; (714) 753-1099; fax (714) 753-1098.



C&M TEAM COBRA

Battery Vise

Here's a great way to grip loose cells while you solder. Made of super-tough nylon, the vise has a Velcro®-brand fastener strap to hold the cells.

Price—\$12.95.

C&M Mfg./Team Cobra, P.O. Box 701353, West Valley City, UT 84170; (801) 974-5757; fax (801) 974-0869.



PROTOFORM

'97 Corvette C5 GT1 Body

Chevrolet's redesign of the C5 Corvette was one of the most anticipated releases ever, and Protoform was the first to replicate the Corvette's new look for R/C. In addition to its ultra-low clearance and sharp lines and details, this 190mm-wide body fits all the popular narrow (190mm) 4WD and FWD sedan chassis. The body comes with a wing, mounting hardware and easy-to-use window masks and decals.

Part no.—1414; price—\$21.95.

Protoform; distributed by Pro-Line, 201 W. Lincoln St., Banning, CA 92220; (909) 849-9781; fax (909) 849-2968.

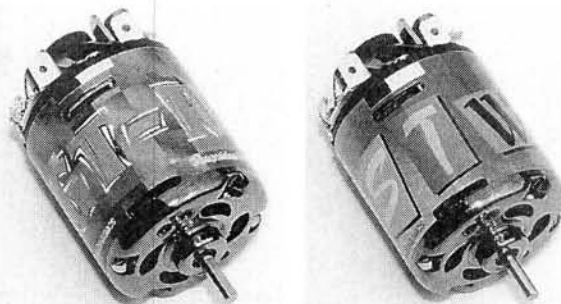
GM RACING

STW and GT-R Motors

These will help give your touring car superior acceleration and top speed, no matter how it has been configured. Run the 14-turn-triple STW in narrow cars and the 12-turn-triple GT-R in wide cars. Both have full ball bearings and unique Cosmic cans with 5.6 magnets.

Part no.—GM 9635 (STW) and GM 9636 (GT-R); price—\$70.

GM-Racing USA, 107 Russel Ave., Niles, OH 44446; (330) 544-9411; fax (330) 544-9416.



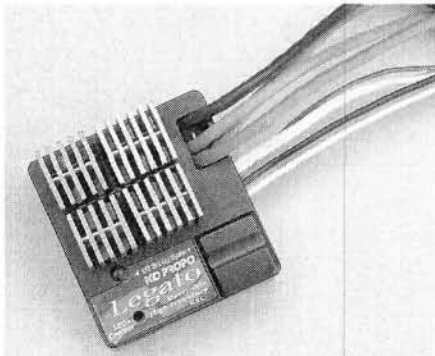
BOLINK

Dragster Wing Kit

Designed for Bolink's Econo-Rail kit, this dragster wing kit can also be used on most other drag cars. The kit includes the wing, pre-bent wire, wing buttons, mounts and hardware. Paint the wing to simulate aluminum or to match the body. The wing's angle is adjustable (up and down and forward and back) so you can set it for more or less traction on the strip.

Part no.—BL-2721-A; price—\$7.49.

Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30245; (770) 963-0252; fax (770) 963-7334.



KO PROPO

Legato High-Frequency ESC

Though it was designed with serious racing in mind, this forward/reverse ESC works as well with stock motors as it does with modified motors. Its built-in FET servo connector makes it compatible with all KO Propo FET servos, and its one-button setting makes it user-friendly. Features include: high frequency for cool operation; two-color LED for easy setup; and highly efficient field-effect transistors.

Part no.—KOPM0500; price—\$129.99.

KO Propo; distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021; (217) 398-6300; fax (217) 398-0008.

LUPO ENTERPRISES

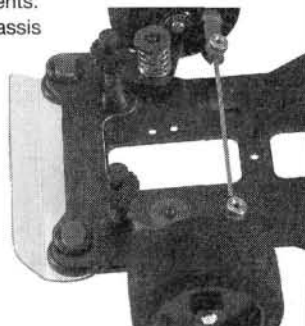
Lexan Bumper for Corally

This superlight, durable bumper for the Corally 1/12-scale SP12-V, SP12-G, SP12-G2 and SP12-G3 cars protects chassis and front-end components.

Mount it on the chassis with the existing fasteners; with little adjustment, it will fit perfectly.

Part no.—LCOR-200; price—\$4.49.

Lupo Enterprises, 12 Spicer St., North Providence, RI 02904; phone/fax (401) 354-4767.

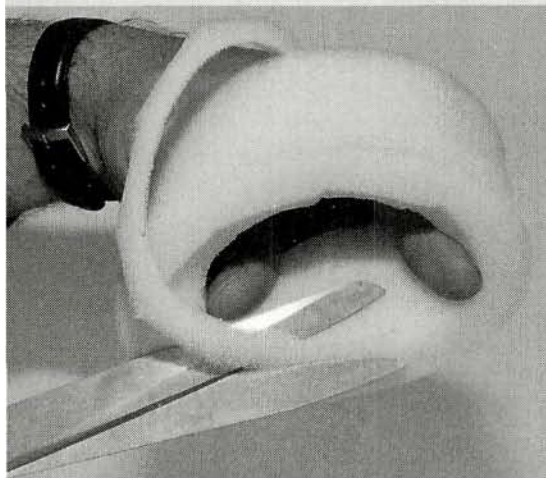


Descriptions of the products shown here were taken from manufacturer and/or advertising agency press releases. The information given does not constitute an endorsement by Radio Control Car Action or guarantee product performance or safety. When contacting a manufacturer about any product described here, be sure to say you read about it in Radio Control Car Action. Manufacturers! To have your products mentioned here, send press releases to R/C Car Action, What's New, 100 East Ridge, Ridgefield, CT 06877-4606.

OFF-ROAD BUGGY TIRE GUIDE

TRIM THAT FOAM!

Many of the tires listed here have foam liners to bolster performance. Without them, the soft-compound rubber can't support the shape of a tire. Foam liners are available in various degrees of firmness to simulate variable tire pressure. But regardless of which foam you use, you won't get the most out of it unless you trim it. If you look at your foam tire liner from the front (as if it were rolling toward you), you'll notice that the foam's profile is rectangular. When the corresponding tire is viewed in the same way, its profile is curved. Even "flat" tires with very little curvature have rounded shoulders where the sidewall transitions into the tread. You should nip the "corner" off the foam liners so that they better fit the inside of the tires and thus provide consistent firmness all around the tires after they're mounted. It's also a good idea to trim a smaller bevel around the inside diameter of the liners to give the rims' bead some clearance.



Racers trim their foam for maximum performance. Try it yourself!

TEAM LOSI

Team Losi tires have numerous world championships to their credit, hence the "IFMAR" designation for many of these treads. In fact, its new X-2000 treads took the top spot in 2WD at the '97 Worlds, which had just wrapped up when this was written. Add "S" or "G" to the part number to indicate Gold (soft) or Silver (wicked soft) compound.

A7378 2.0 STEP PIN

Great for softer tracks.

A7370 2.2 IFMAR DASH

Excellent tire for clay and hardpack conditions.



"I would like to thank Mike Reedy for giving me..."

...THE FASTEST MOTORS



Masami's Top Qualifying

RC10B3

Masami Hirosaka and Reedy Modifieds:

•Top Qualifier, 2WD •Top Qualifier, 4WD
and IFMAR '97 4WD World Champion

REEDY
18

Everybody Else
COMBINED:

9

KNOW THE REAL SCORE...

Reedy Modifieds have powered 18 World Champions...
More than all the other motor manufacturers combined!



Step Pin Rear



IFMAR
Dish Rear



IFMAR Pin
Front 4WD



4-Rib Front
Wide Body



Diamond Front



IFMAR Stud
Front 4WD

A7281 FRONT 4WD IFMAR PIN

Good choice for hard surfaces with loose top layers.

A7202 FRONT 2WD 4-RIB

"Wide Body" front tire, good for all dirt surfaces.

A7203 FRONT DIAMOND

Try these on very hard tracks or as a fun-run tire for pavement.

A7283 FRONT 4WD IFMAR STUD

Beefier tread pattern for less-than-hard tracks.

A7375 2.2 REAR SPRINT

Square-pin-type tread is good on hard dirt and clay.

A7367 2.2 REAR IFMAR PIN

Good choice for hard surfaces with loose top layers.

A7364 2.2 REAR IFMAR STUD

Larger stud design for softer surfaces.

A7368 2.2 BIG SHOT BUGGY

Round carcass with pin design for hard, bumpy tracks.

A7373 2.2 IFMAR MINI-STEP

Less flexible step design gives better bite on less-than-hard tracks.

New X-2000

Micro-block with center X-tread; used to win '97 Worlds on blue-groove track.

IFMAR Stud Rear



Big Shot Rear



IFMAR
Mini-Step Rear



X-2000



IN THE WORLDS!"

Reedy Modifieds powered Masami Hirosaka's new RC10B3 to Top Qualifier Honors, turning the FASTEST LAPS of any 2WD car. And, Reedy Motors took Masami's Yokomo MX4 to Top Qualifying Honors in 4WD before powering away from the rest of the field to capture the 1997 IFMAR 4WD World Championship! In fact, Reedy Motors were in twice as many cars in the 4WD A-Main as the next leading brand of motor!

-Masami Hirosaka,
at the World's Award Banquet

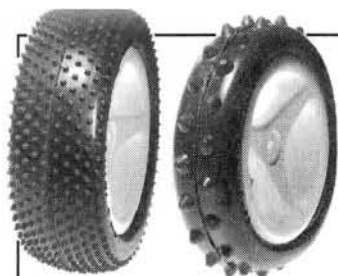


REEDY Modifieds

Associated Electrics • 3585 Cadillac Ave., Costa Mesa, CA 92626



<http://www.rc10.com>
ad #1032-120



Mini Pin
4WD Front

Full Spike Front

SCHUMACHER

Although "off-road" is synonymous with dirt here in the U.S., the term has a decidedly different meaning in Europe. For Euro racers, grass grows where the pavement ends, and many of Schumacher's treads reflect its experience with turf racing. But as of late, the "Schu-crew" has released new skins designed just for dirt, along with a new super-soft pink compound that's about as soft as hot bubble gum. Other compounds include yellow (soft), green (medium) and blue (hard). Schumacher tires do not include foam inserts.

PINK

YELLOW

GREEN

BLUE

MINI-PIN 2.2

Use softest pink compound for dirt tracks. Firmer formulations are for use on grass, synthetic, or multi-surface tracks.

Rear	U6642	U6608Y	U6605V	U6602S
Front (4WD)	U6641	U6607X	U6604U	U6601R
Front (2WD)	U6643	U6609Z	U6606W	U6603T

MINI-SPIKE 2.2

Larger, more widely spaced spikes excel on softer tracks.

Rear	U6645	U6558A	U6516K	U6518M
Front (4WD)	U6644	U6557Z	U6515J	U6517L
Front (2WD)	U6646	U6581X	U6550S	U6549R

STUBBY 2.2

The short, fat knobs of Schumacher's Stubby tread deflect less on high-traction surfaces for more precise control. The companion tire for 2WD is the Slim Stagger Rib.

Rear	NA	U6600Q	U6598O	NA
Front (4WD)	NA	U6599P	U6597N	NA
Stagger rib (2WD)	U6649R	U65921	U6548Q	U6547P

FULL SPIKE 2.2

If you run on deep, soft dirt or mud (yeah!), this might be the tire for you. Available in hard compound only to support tall spikes.

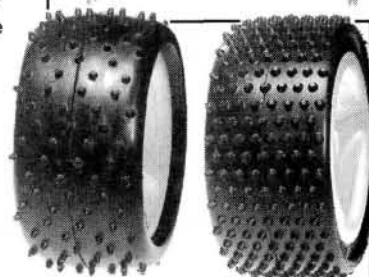
Rear	NA	U6596M	U6528W	U6527V
Front (4WD)	NA	U6595L	U6530Y	U6529X
Front (2WD)	NA	NA	U6524S	U6523R

MINI-SPIKE ORIG. 2.2

Low-profile tire has a mini-spike design on a flat carcass for use on smooth grass or synthetic courses.

Rear	NA	NA	U6512G	T679W
Front (4WD)	NA	NA	U6511F	T681Y

OFF-ROAD BUGGY TIRE GUIDE

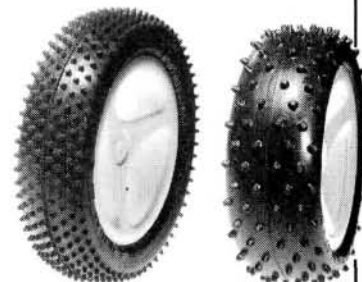


Mini Spike
Orig. Rear

Stubby Rear

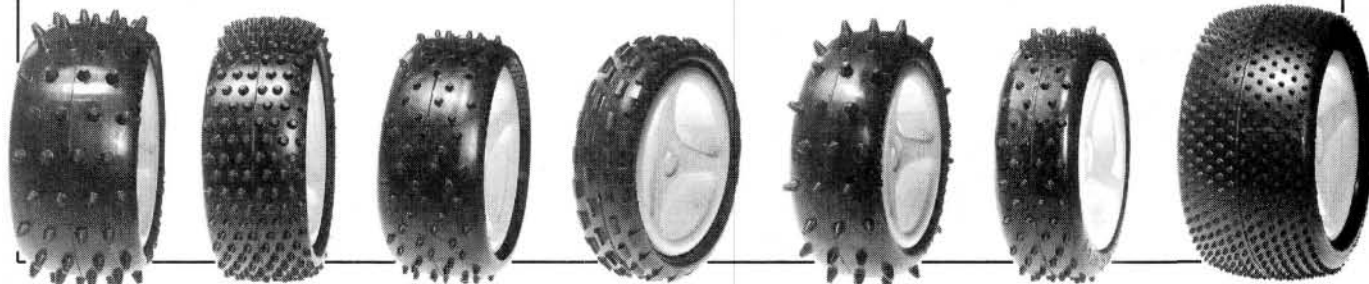


Mini
Spike
Rear



Mini Pin Front

Mini Spike
4WD Front



Full Spike
Rear

Stubby 4WD
Front

Mini Spike
4WD Orig. Rear

Stagger Rib
Front

Full Spike
4WD Front

Mini Spike
Front

Mini Pin
Rear

GLOSSARY OF TRACK CONDITIONS TERMS

Blue groove: dark areas of the track created when tire material is deposited on the surface. This happens on very hard, fast tracks.

Clay: the hardest surface short of asphalt. Blue grooves often form in the hot lines.

Hardpack: packed-down dirt. It can be very slippery when unwatered because the sand on top becomes loose.

Loam: fluffy, loose dirt, like potting soil. It usually gets pushed away from the corners, revealing other conditions that offer more or less traction.

Loose sand: granular, particulate sand that can't be packed—similar to what you'd find at a beach.

Marbles: pebbly, coarse material. Like spilled marbles on a kitchen floor, it's very difficult to get traction on it. Tracks aren't usually made of this stuff, but virtually every club track has marbly areas.

OFF-ROAD BUGGY TIRE GUIDE

WHICH TIRE WHEN?

As you would expect, which tread you should choose depends primarily on the type of surface you will run on and your handling objective. Ultimate traction isn't always the goal! Very often, finding the fast tire setup means looking for less traction to balance the amount of grip at each end of the car. This guide will get you started, but every track is unique. Look around the pits to see what the fast guys use, and experiment.

- **Fuzzies/Square Fuzzies.** Fuzzies have very fine pins that may be round or square in cross-section. Both are useful on harder track surfaces such as hard-packed dirt and clay. The tires work by scraping loose surface dirt to gain traction from the harder-packed surface below. Thanks to the pins' sharp edges, square fuzzies may be better in some cases. Much of the traction from fuzzy-type tires comes from their soft rubber material, as opposed to any mechanical gripping action of the tread. On some tracks, tire wear creates a "blue groove" as soft rubber is deposited on the surface. Tires wear until they virtually become slicks, yet they still grip well, thanks to the rubber's adhesive properties.

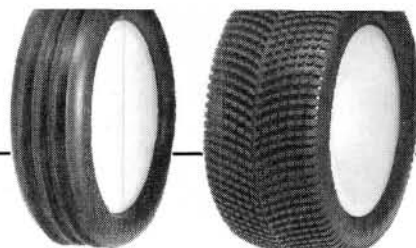
- **Mini-Pins.** One step up in pin size from fuzzy treads, mini-pins excel when a track is softer, but not sandy. The larger pins are able to dig deeper for traction and evacuate more material from their treads to prevent dirt from loading up.

- **Step Pins.** For loamy tracks, step pins may be a good choice. The stepped design gives extra support to the knobs, so they won't flex too much under load. This allows them to excavate more soft material from the track to gain traction. With knobs of this size, compound is less important than tread pattern; coincidentally, tread pattern is a tunable characteristic of the step-pin design. Using a pair of sharp scissors (body scissors work well), the smaller "sub knobs" can be trimmed to reduce their penetration on less loose surfaces. Generally, the looser the surface, the taller the knob, and vice versa.

- **Spikes.** Back in the R/C boom years of the early '80s, lots of cars featured really hard tires with giant "Road Warrior" spikes sticking out. They didn't work very well, but they sure looked cool in a sado-masochistic sort of way. Today's spike treads are best suited to soft surfaces and, believe it or not, grass. In Europe, lots of

PRO-LINE

Unlike Losi and Schumacher, Pro-Line is primarily a tire company. Tires are virtually all it makes! Thanks to its prolific R&D department, Pro-Line always has a hot tread in the works. Add "M2" (soft compound) or "M3" (softest) to the part numbers.



Multi-Rib

Rally Hawg

8015 MULTI-RIB (4-RIB)

Directional design with beveled, flat-top ribs; lots of soft-track bite.

8061 RALLY HAWG

All-purpose "fun" tire, may also be good for flat, hard tracks.

8083 FLAT FUZZIE

Short mini-pin design for excellent traction on hardpack and clay.

8086 FLAT STUBBIE

Chunkier tread is great for loamy tracks.

8087 STEP PIN

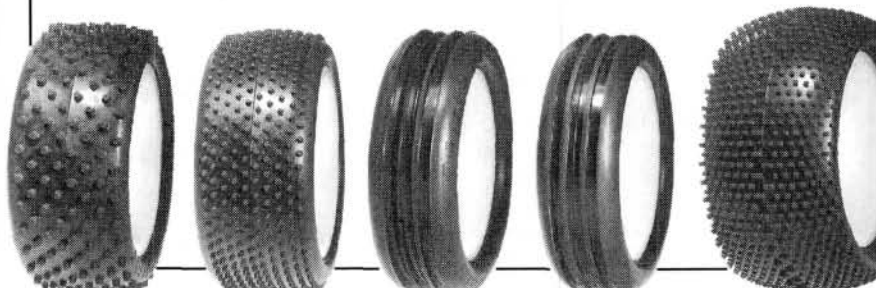
Well-supported pin-type tread is good on dense, loamy surfaces.

8088 FLAT 80 (MINI-PIN)

Flat carcass design delivers on for high-bite, smooth tracks.

8089 SQUARE FUZZIE

Tiny, closely spaced square knobs for blue-groove performance; block center tread for excellent straight-line traction.



4WD Front
Stubbie

4WD Front
Fuzzie Mini-Pin

Edge 2

4-Rib

Hole Shot Square
Mini-Pin

TIPS FOR GLUING TIRES

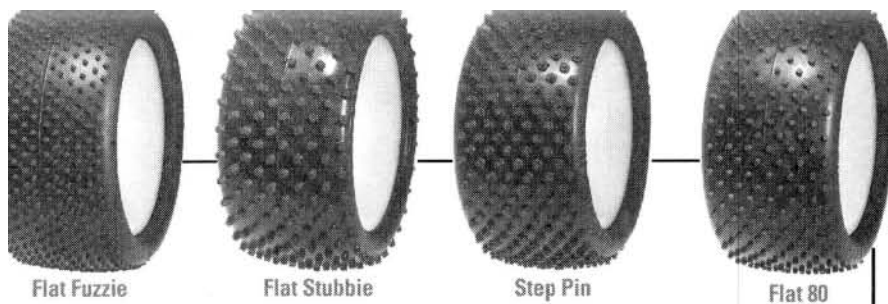
Gosh, I sure do love R/C. And yet, aspects of this hobby make me so mad that I just want to give an atomic wedgie to the guy who invented R/C cars. Things like threading turnbuckles and searching for dropped thrust balls fill me with rage, but gluing tires—boy, that takes the cake. Make your life easier and follow these steps:



2 Use thin CA. Don't mess with hardware-store brands that are meant to fix broken tea-cup handles, high heels and eyeglasses, or bond some poor construction worker's hardhat to a steel beam. Use good R/C stuff like Zap* or Trinity's* Tire Fix. Stay away from thick or gel-type cements. For the best control, open the smallest possible hole in the glue nozzle.

1 Before you glue, clean mold-release residue off rims and tires with a rag spritzed with motor spray. During manufacturing, molds are coated with a liquid release agent to prevent parts from sticking to them. All molded parts—including tires and rims—have a little mold-release residue that, unless it's wiped off, will prevent glue from adhering.





Flat Fuzzie

Flat Stubbie

Step Pin

Flat 80

1125 4WD FRONT STUBBIE

Coarser tread is better for loamy conditions.

1135 4WD FRONT FUZZIE MINI-PIN

Ideal for blue-groove tracks.

1145 EDGE 2

The beveled point-top rib delivers max bite on soft or marbly tracks.

1175 4-RIB

Tall, flat-top ribs give best traction on hard surfaces.

1183 HOLE SHOT SQUARE MINI-PIN

Sharp-edge knobs are superior on hardpack or clay tracks.

1186 BOW-TIE SQUARE SPIKE

Lug-type tread is good for loamy or soft conditions.

NEW LOW-PROFILE STEP PIN

Low-profile carcass for less flex on smooth surfaces.

NEW LOW-PROFILE HOLE SHOT

Low-profile carcass for more predictable smooth-track handling.



Square Fuzzie



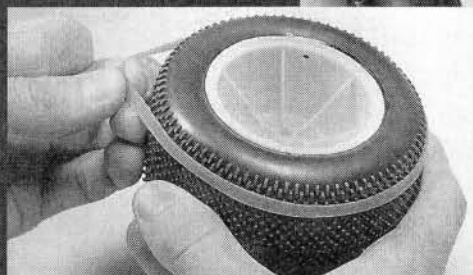
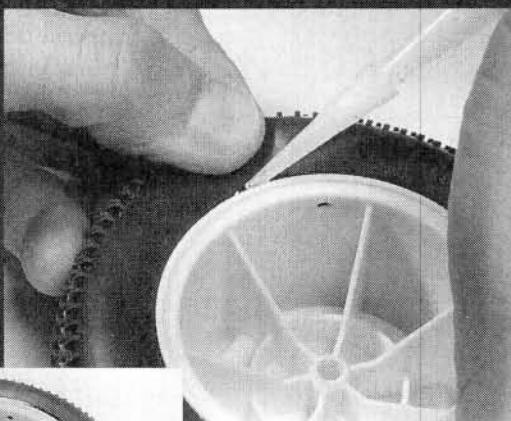
Low Tie Square-Spike

Low-Profile
Step Pin

Low Profile
Hole Shot

Low Profile Hole
Shot 4WD

3 To glue, gently pull the tire away from the rim just enough to open a gap. You don't have to pull away a big chunk of tire; a 1mm gap will do. Drip the CA into the gap; capillary action will pull the CA into the tire/wheel joint. Work your way around the tire until it has been fully glued, then dab off any drops of glue with a rag. Repeat for the other side of the tire.



4 Finish the job by wrapping a rubber band around the tire to keep it fully seated against the rim until the CA has completely cured. If I have the luxury of time, I wait at least an hour before I run freshly glued tires; overnight is even better.

racing is done on the green stuff; that goes a long way toward explaining the plethora of spike-based treads coming from the Eurodogs at Schumacher. Like step pins, spikes can be tuned by altering or removing spikes. Nipping off their tips will generally create a sharper edge for better bite, and spike length can be altered to compensate for different degrees of looseness in the track surface.

• Ribbed tires. Ribbed treads are used exclusively on the front ends of 2WD trucks and buggies. Because the front wheels aren't driven, they need perform only steering duties and don't require a knob design. When ribbed tires are running straight, the lack of resistance-producing knobs allows them to roll with the least possible resistance. When a turn is initiated, the ribs try to channel the material on the running surface through the "valleys" between them and thus cause the car to turn—at least, that's how a rib tread produces mechanical traction. Like soft-compound rear tires, front softies derive much of their grip from their tread material's tackiness.

CARCASS TYPE

Until now, our discussion has been solely about treads, but a tire's body (known as the carcass) is also highly important. A low-profile tire features a carcass with very short sidewalls; the tread is close to the rim. This design does not allow the tire to flex in the corners as much as a taller tire; it also creates a more stable feel at the wheel and generates more traction on smooth tracks. On rough tracks, however, a "lo-pro" tire offers less bump absorption; this is where the taller sidewalls can shine by virtue of their extra flexibility. In addition, the more flexible tread of a tall-side-wall tire can create a bigger contact patch as the tire is compressed by the vehicle's weight, resulting in extra traction. The carcass also determines the tire's overall shape. When "flat" tires are viewed as if they are rolling toward you, the tread appears to form a straight line across the sidewalls, like a drag slick. "Round" tires' treads appear to arc across the sidewalls, like an ATV tire. These are extreme examples; most tires fall somewhere in between. In most cases, flat tires excel on smooth surfaces where they can generate the largest contact patch. They produce a lot of forward traction and resist deformation during hard cornering. But on bumpy surfaces, the flat tread tends to span the peaks of the bumps, and it "misses" a lot of the track; this is where rounded tires perform best. Round-carcass tires can dip into the valleys and deform over the peaks more easily when the going gets rough. The round shape is also less sensitive to camber changes and tends to produce more side-bite; this helps the tires resist spinouts.

*Addresses are listed alphabetically in the Index of Manufacturers on page 209.

Racing

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Whether you're a dealer or just a bunch of fun-lovers in search of a race program, call now! Here are a few hot-line numbers to call if you have any questions, or if you'd like to start a program in your area.

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**Tamiya R/C
Championship
Series**
(800) TAMIYA-A

**Kyosho R/C
Sport Racing**
(800) 682-8948
ext. 085F

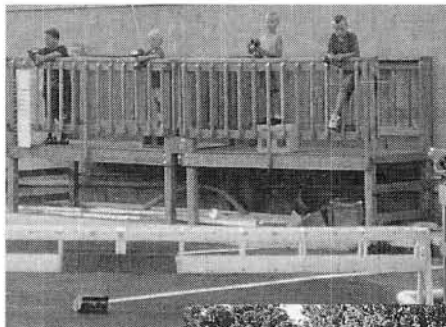
**Hobby Shack
Parking Lot**
(714) 964-8846

**Hobby Town USA
Parking Lot**
(402) 434-5050

**Trinity Street
Spec Series**
(908) 862-1705

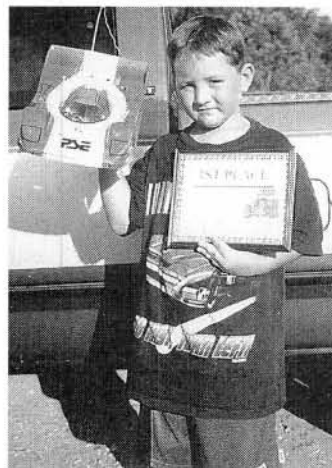
Saturday Nights Under the Lights

Racing is varied at Brown Brothers Hobbies in Dumfries, VA. A good crowd typically shows up for five classes on Saturday nights. Races are run for stock pan car/GTP, 4WD sedan, modified off-road truck, novice and the very popular 4-cell NASTRUCK.



Left: the drivers' stand allows a good view of the road-course as the novice-class racers fire it around the corner markers.

Right: novice-class winner Justin Tiller poses proudly with his first-place plaque and Parma/PSE pan car.



Right: in its first parking-lot-series races, Brown Brothers Hobbies in Dumfries, VA, presents awards to its top runners.



South Jersey Sedan Action

SJCC (South Jersey Cost Control) Racing's summer series offers three heats each of electric and nitro sedan races. Not only do the races bring in newcomers, but they lure old-timers back for the touring-car class as well.

Sedan classes have recently surpassed oval classes in popularity, although the track's classes still include oval NASCAR, NASTRUCK and sportsman, as well as roadcourse NASCAR, NASTRUCK, 4WD stock and open. The rules prohibit wings and rear cutouts, and house/spec motors and tires are required, except in the 4WD open class.

For Sunday racing, the roadcourse is laid out in the parking lot at the Alpine Lounge (a local restaurant).



(TCS) #38

Tamiya's Championship Series



Winners

F1

1	Sam Daugherty
2	Neal Sartor
3	Frank Rehnehl
Best of show	Lee Passehl
Top rookie	Lee Passehl

FWD Sedan

1	Eric Marquardt
2	TJ Burford
3	Serdar Aytemiz
Best of show	Eric Marquardt

4WD Sedan

1	David Weir
2	Serdar Aytemiz
3	Nakayuki Tainaka
Best of show	Nakayuki Tainaka
Top rookie	Paul Lemieux

Indy Spec

1	Mike Dibb
2	Pat Bailey
3	Paul Lemieux
Best of show	Erik Bruner
Top rookie	Paul Lemieux

4x4 Truck

1	Matt Fuel
2	Erik Bruner
Best of show	Erik Bruner

Mini Sports

1	David Weir
2	Brian Stricklin
3	Matt Sunderlage
Best of show	Mark Sykes

Classes

No. of entrants

F1	14
FWD sedan	5
4WD sedan	29
Truck	3
Indy spec	6
Mini sports	11

It's amazing that Tamiya is able to turn out as many hot new products as they do and still devote so much time to their series, national and world races. With the help of the series race hosts, though, these extremely well-known races continue to draw large groups of racers across the country. Of course, the possibility of ending up in Kakagawa, Japan, for the Tamiya Worlds at the company's international headquarters probably sweetens the ante for racers and encourages them to attend regional races in the spring and summer. Action Hobbies in Memphis, TN, lured 45 racers to its parking lot for TCS no. 38.

After the races had concluded on this summer Sunday, winners from five classes gathered for this shot.



As always, Tamiya rewards entrants not only with the opportunity to race at the Tamiya Nats and Worlds later in the year, but also with door prizes like these great kits shown in front of this group of racers.

Stock Motor

Keep that stocker smokin'!

Maintenance Tips

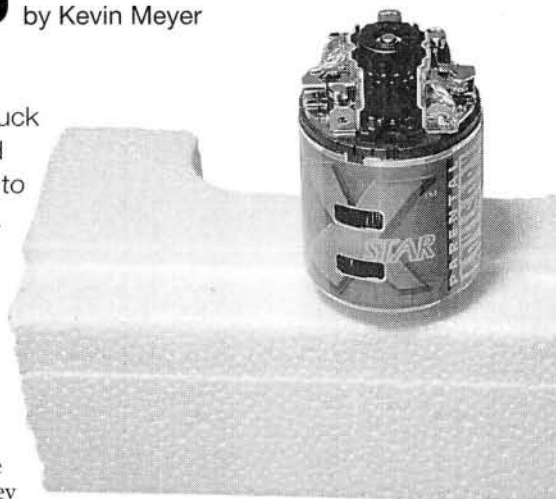
by Kevin Meyer

WHETHER YOU race on-road or off-road, touring car or truck class, you must keep those all-important motors in good working order. Here are some simple tips on motor care to help you to spend less time in the pits and more time on the track.

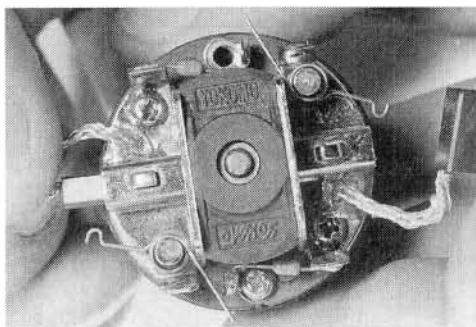
- Clean your motor thoroughly and regularly. Follow a schedule; it will depend on where you run (off-road, on-road or in your backyard) and how often. A good rule of thumb is to clean your motor after running three battery packs. If you compete, start every race day with a freshly cleaned motor. If you race three heats (qualifiers) and a main event, try to clean it before the third heat. This will ensure that it runs properly for the final heat, and it will minimize the possibility of motor problems during the Main.

comm stick. Afterward, put a drop or two of light oil on the bushings or bearings.

- Because of the way your brushes break in on the commutator, it's important to put them back into the brush hood in the same places as they were before you took them out. This ensures they seat properly on the comm. To ensure correct installation later, mark the brushes with a permanent-ink pen.



A spool of solder or some Styrofoam packing makes a great no-cost motor stand. Use it when you're soldering on capacitors or cleaning and replacing brushes. I hate trying to work on my motor when it's rolling around on my workbench.



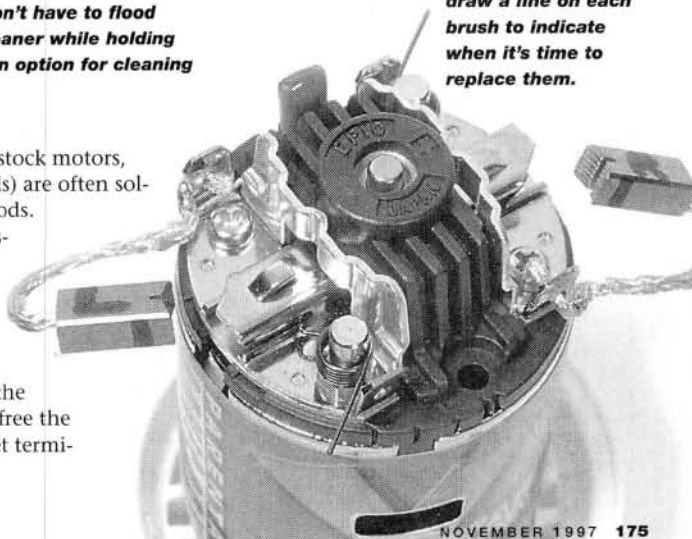
Above left: To reduce resistance the low-budget way, solder the brush lead directly to the brush hood. To prevent the brush hood from shifting and altering brush alignment, tighten and then solder the hood screws into place as well. Above right: you don't have to flood your motor to get it clean! Just give the commutator a few blasts of cleaner while holding the motor so that the cleaner and dirt will run out. Motor bath is also an option for cleaning the inside of your motor.



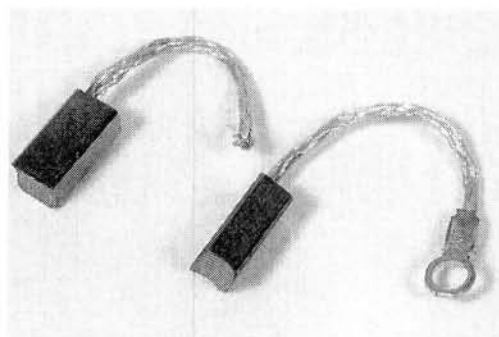
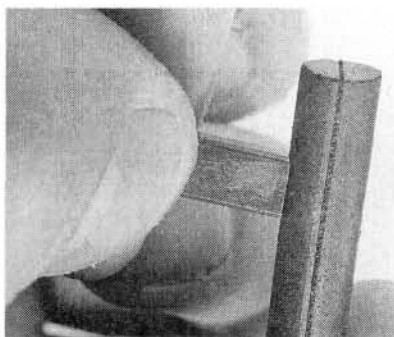
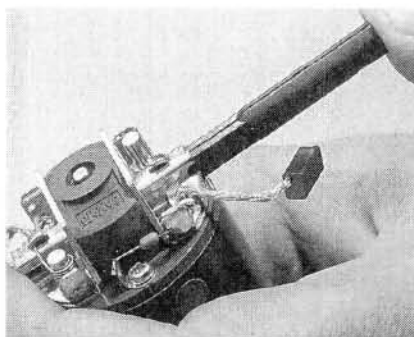
To ensure that the brushes are correctly installed in the hood, mark them appropriately with a permanent-ink marker. Indicate which is the left and which is the right brush by marking the top of the brush. You can also draw a line on each brush to indicate when it's time to replace them.

Don't flood your motor with motor spray. A few quick shots on the commutator (comm) and on the bushings or bearings are all you need. If you flood it with cleaner, you risk washing dirt and debris back into the motor and removing lubricant from the bushings. Spray the inside of the motor only until the fluid that runs out of the motor can is clear. A motor bath is a good alternative, particularly if you race off-road. Be sure to clean the brushes and comm with a high-quality

- On "factory-tuned" stock motors, the brush shunts (leads) are often soldered to the brush hoods. This helps reduce resistance and makes the motor more efficient. If your motor's manufacturer didn't do this, it's easy to do it yourself. Just remove the brush-hood screws to free the leads, cut off the eyelet termi-



STOCK MOTOR MAINTENANCE TIPS



Left: comm sticks offer an easy, inexpensive way to clean your commutator. **Center:** while you have the comm stick out, sand the brush surface with its round edge. Do not sand up and down, though; sand the brush surface in the same direction as the comm spins on the brush surface. **Right:** these brushes are of the same compound. The only difference is that one lead has an eyelet for easy fastening and the other must be soldered into place. Of the two fastening methods, soldering gives better motor performance. On the other hand, the brush with the eyelet is easier to install and remove.

When soaked with water and then placed over the motor can, a motor wrap does a great job of dissipating heat.



nals, and solder the leads directly to the hood. You might want to solder the hood screws so they won't loosen; a loose hood can shift, and that will alter your brush alignment and cause uneven brush wear.

- When should you change your brushes? Obviously, if they're broken or cracked, replace them.

If they're black or charred because of overgearing or lack of cleaning, a blast of motor spray and a swipe or two with a comm stick will usually save them for a few more runs. Manufacturers of high-quality brushes now mark the body of the brush so that you can assess brush wear. When they're worn down to this indicator, it's time for fresh brushes.

- One of the most cost-effective ways to increase motor life and decrease the frequency of maintenance is to use an endbell filter. A small piece wrapped around the motor's endbell will keep out everything from dust to small pebbles—everything your motor is likely to encounter—but it will still allow cooling air to enter.

- A heat sink helps extend motor life by drawing heat away from the motor and dissipating it through the larger surface area of its fins. You can also keep your motor cool with motor wrap. Soak the absorbent wrap in cold water and then slip it over the motor can; its effect on motor temperature will be significant.

Well there you are: a few simple tricks to keep your stock motors running smooth. Spend a few minutes caring for those motors and they will give you hours of fun without your having to spend a dime. Now go out there and take home an A-main win! ■

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YOKOMO YR-4M2

(Continued from page 104)

and easy to get a good feel for the car and the track. The "Barry Baker" setup was right on (see "Building & Setup Tips")! With packs two through five, I dropped the hammer. The car had a ton of acceleration from corner to corner. The weight distribution felt ideal because I had plenty of steering without sacrificing stability or traction. The most noticeable difference between this car and the YR-4M had to be the locked one-way system. I was able to drive the YR-4M2 harder through the corners by staying on the throttle and creating a slight 4WD drift.

To be totally fair about this testing business, I wanted to run the YR-4M2 on a completely different track surface. I packed up my gear and headed down to Costa Mesa, where the new So Cal Raceway had recently opened an indoor, paved-oval track with a carpet infield and an awesome off-road track, all in one building. Sticking with the same setup, I jumped right onto the track. It was much smaller than my previous test venue, so I couldn't use all the horsepower the Reedy powerplant supplied.

On the high-bite carpet, the car was very touchy and didn't seem to flow through the corners well. After I had finished my battery pack, I went back to the pits and removed the pin from the center drive shaft to reactivate the one-way drive system. That was the edge I needed. The car was now much easier to drive, and it flowed around corners with much more speed and consistency. That was the only change in setup that I made all weekend. The YR-4M2 had plenty of steering, traction, acceleration and top speed at both of these very different tracks.

FINAL THOUGHTS

In the immortal words of Siskel and Ebert, I give the Yokomo YR-4M2 "two thumbs up." The overall construction of the car is topnotch; its performance speaks for itself. It doesn't, however, have a budget price, though I honestly feel that you get what you pay for in this case. The YR-4M2 is ready to race straight out of the box. Yokomo engineers have put a lot of time and thought into every aspect of this car. With minor adjustments and practice, you can be running with the big boys in no time at all.

*Addresses are listed alphabetically in the Index of Manufacturers on page 209. ■

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HOBBYIST

WANTED: Tamiya Mountaineers, Bruisers and Blazing Blazers—any condition, even partially assembled or in the box. Patrick (soflorobo@aol.com), 7020 SW 16 St., Plantation, FL 33317. [11/97]

WANTED: Kyosho 1/8 fuel F1 cars, parts. John, (617) 969-3779. [12/97]

EVENTS

DA BIGGEST AND BEST R/C Car Action will be at the Midwest's largest Radio Control Swap Meet and Expo on Sunday, October 26, 10 a.m.-3 p.m. in the main exhibition hall at the DuPage County Fairgrounds, 2015 Manchester, Wheaton, Illinois. Cars, helis, planes and boats will be on display and available for swap/purchase. R/C car demos by Radioactive Raceways on the stage. Live engine and helicopter demos. R/C transmitter checkout/repair available on site by D&J Electronics. Food, free parking, fantastic B-25 warbird raffle, Uniformed Scouts, Campfire Girls, etc., admitted FREE with a paying adult. Adults, \$5; children, \$3. Discount on advance bulk ticket purchases. Call the Hobbytime Flyby Knights at (630) 837-8437 for table rental, flyer, or more info. [11/97]

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TAMIYA PORSCHE 911 GT1

(Continued from page 85)

I noted that all my electronics performed superbly—especially the Hitec® HS-225BB steering servo. This tiny servo puts out an amazing 67 oz.-in. of torque and can rotate from full lock to full lock in 0.11 second! The Hitec servo had my TA03R-S turning with precision, and it centered perfectly each time. If you're looking for an affordable, lightweight, high-speed/high-torque servo, consider the Hitec HS-225BB a must-see.

FINAL THOUGHTS

Tamiya has once again produced a winner, and I don't think I'll ever have to say anything to the contrary about a Tamiya car. The TA03R-S's mid-motor configuration combined with its short-wheelbase chassis makes for a really nimble drive. With a few hop-ups, this car can become a major threat on short tracks across the U.S. Unfortunately, the R-S is not IFMAR-legal. It has a 237mm wheelbase—below IFMAR's 250mm minimum requirement. Unless your sole purpose is sanctioned competition, this should not sway your purchasing decision, though. The Tamiya Porsche 911 GT1 is a true R/C enthusiast's car, and it will provide its owner with much satisfaction.

*Addresses are listed alphabetically in the Index of Manufacturers on page 209. ■

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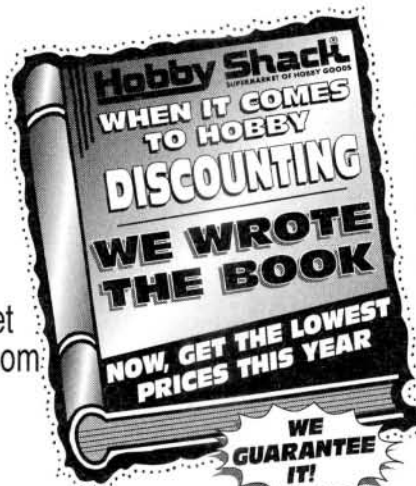
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-  Outdoor
-  Off-road
-  Oval
-  Dirt oval
-  Carpet
-  Concrete
-  Asphalt
-  On-site hobby shop
-  AC power
-  Auto lap-counting
-  Food available

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Hobbytown USA Raceway, 450-D Schillinger Rd. N., Mobile, AL 36608; Rob & Kari Baker, (334) 633-8446


Lagoon Park R/C Raceway, 2730 Lagoon Park Dr., Montgomery, AL 36109; Alex Love, (334) 272-6438


Phenix Raceway & Hobby, 2006 Opelika Rd., Phenix City, AL 36867; Chris Watson, fax, (334) 298-9786


R/C Hi-Tech Raceway, 3303 Meridian St., Huntsville, AL 35811; Rick Chambers, (205) 539-1347.


R/C Thunder Tracks, 1530 Schillinger Rd., Mobile, AL 36675; Jerry Hurst, (334) 645-2787


Sunbelt Hobby Center, 2015 Memorial Pkwy., Huntsville, AL 35801; Chris Wilson, (205) 539-3191


ALASKA

Alaska Indoor R/C Auto Raceway (AIRCAR), 600 Arctic Blvd., Anchorage, AK 99518; Mary Stimpson, (907) 561-7733


Fairbanks R/C Car Club, 510 Janeau Ave., Fairbanks, AK 99701; Dan Anderson, (907) 456-5494


ARIZONA

Cottonwood R/C, S. 6th St., Cottonwood, AZ 86322; Sal Cirincione, (520) 567-8830


G&S Raceway, 967 Hancock, Bullhead City, AZ 86442; Bob Olsen, (520) 758-1100


Havasut R/C Raceway, 1400 S. Smoketree (Rotary Park), Lake Havasu, AZ 86403; Jeff Roe, (520) 855-2226


Hobbytown Mountain Raceway, 1500 E. Cedar Ave., Cedar Hills Shopping Center, Flagstaff, AZ 86004; Richard, (520) 214-9887


Hobbytown Raceway, 9180 E. Indian Bend Rd., Scottsdale, AZ 85250; Dennis, (602) 948-3946


Hobbytown Raceway, 1915 East Baseline Rd., Gilbert, AZ 95234; Kenny, (602) 892-0405


Hobbytown Raceway, 1102 E. 22nd St., Tucson, AZ 85704; Adam Crippen, (520) 882-8888


Hobbytown U.S.A., 5030 E. Ray Rd., Phoenix, AZ 85044; Linda McFarland, (602) 598-5282


Quarter Flash's Squirtil' Dirt Raceway, 16301 S. Santa Rita #C, Sahuarita, AZ 85629; Dave or Randy, (520) 625-9274


R/C Sports Mania, 3550 N. 35th Ave., Phoenix, AZ 85017; Brian Dick, (602) 278-3671


Scottsdale R/C Raceway, 3023 N. Scottsdale, Scottsdale, AZ 85251; Scott Anfinson, (602) 945-2186


Speedway Hobbies, 2710 N. Steve's Blvd., Suite #8, Flagstaff, AZ 86004; Gary McAllister, (520) 556-0710


Thunder Mountain R/C, 1325B Plaza Mavia, Sierra Vista, AZ 85635; Wayne Tuthill, (502) 459-4173


USA Speedway, 5947 W. Alameda, Glendale, AZ 85310; Michael Fleek, (602) 516-1398


ARKANSAS

A.R.C.C.A., 13703 Pleasant Hill Rd., Little Rock, AR 72209; Jim Kifer, (501) 455-2221


Grand Slam Superspeedway, 5300 S. Zero St., Ft. Smith, AR 72901; Bryon Shumate, (501) 648-1994


R/C Motorplex, 204 Best Industry Dr., Jonesboro, AR 72401; David Hill or Kevin Brady, (501) 931-3278


Superior Offroad R/C Club, 2400 Bowman Rd., Little Rock, AR 72211; John Reynolds, (501) 778-7875


Sparks R.C. Raceway, 7194 Greene 721 Rd., Paragould, AR 72450; Tommy Sparks, (501) 239-3606


CALIFORNIA

A-Main Racing, 4309 North Cedar Ave., Fresno, CA 93776; Keith Gerhke, (209) 225-8001


California City R/C Car Track, 8349 Jacaranda Ave., California City, CA 93505, (619) 373-3765


Cameron Park Raceway, 1305 Cameron Ave., West Covina, CA 91790; Carl A. McVey, (818) 962-1120


Cats West/Hawk's R/C Raceway, 1201 West 10th St., Antioch, CA 94509; Jerry Winkelbaver, (510) 779-1665


C-Bar-C, Oak Ave., Citrus Heights, CA 95610; Ken Maddox, (916) 725-3313


Cycle Art Raceway, 2211 N. Pleasant Way, Fresno, CA 93705; Jesse Shapiro, (209) 233-3665


DiscountHobby Warehouse, 7750 Convoy Ct., San Diego, CA 92111; Gary Guest, (619) 580-9633


Freedom Park Raceway/Ventura Roadrunners, Freedom Park Dr., Camarillo, CA 93010; Wayne Evans, (805) 656-RACE


Geotek R/C Racing, 92 Aero Camino, Goleta, CA 93117; David Jones or Mike Atherton, (805) 961-2178; fax (805) 961-2179


Gold Nugget Raceway, 4650 Skyway, Paradise, CA 95969; Marvin's R/C Hobbies, (916) 877-7363


Greater Los Angeles R/C Racing Club, 3756 Cardiff Ave., #305, Los Angeles, CA 90034; Nikko Ko


Hobby Central Raceway, 34255 P.C.H., Unit 107, Dana Point, CA 92629; John, (714) 488-8095


Hobby Paradise Raceway, 1880 Art Gonzales Pkwy., Selma, CA 93662; Steve Kelsner, (209) 896-4804


HobbyTown, Parktown Plaza Shopping Center, 1350 S. Park Victoria Dr. #21, Milpitas, CA 95035; (408) 945-6524


Hobby Warehouse, 5500 So. Watt, Sacramento, CA 95828; Roger Hubbard, (916) 381-7587


Hot Rod Hobbies, 25845 San Fernando Rd., #21, Saugus, CA 91350; Rod Weisbaum, (805) 255-2404


Jake's Performance Hobbies, 6650 Commerce Blvd. #21, Rohnert Park, CA 94928; Jake, (707) 586-3375


JC High Desert Raceway, Gorgonio Rd., Phelan, CA 92329; JC Fletcher, (619) 868-4834


Just for Fun R/C Raceway, 509 S. State St., Ukiah, CA 95482; Don, (707) 462-7305 days


KW Raceway, 5630 Ager Rd., Montague, CA 96064; Keith Wilson, (916) 459-3787


Lake Tahoe Raceway/Sierra Hobbies & Raceway, P.O. Box 9969, South Lake Tahoe, CA 96158; Mark Osser or Greg Smith, (916) 541-4555


Loki Raceway & Hobbies, 1875 Joe Crossen Dr. #B, El Cajon, CA 92020; Ed Mullen, (619) 562-7757


Lucerne Valley Raceway, 32800 Old Woman Springs Rd. #4, P.O. Box 2047, Lucerne Valley, CA 92356; Frank Rodrigue, (619) 248-7305


M n M Hobbies, 4225 Prado Rd., Suite 103, Corona, CA 91720; Joe Stanovich, (909) 272-3545


M.R.C.A.R., Fantasy Castle, Merced Airport, Merced, CA 95340; Chris Jones, (209) 723-6662


Nor-Cal Mini-Speedway, 519 Bush St., Woodland, CA 95695; Steve Van Atta, (916) 668-5678


Perris Recreation R/C Track, 120 N. Perris Blvd., Perris, CA 92370; (909) 943-6603


R/C Racing Center and Hobbies, 9842 Channel Rd., Lakeside, CA 92040 (San Diego County); Russ or Cindy Escalera, (619) 443-2270


R/C Velodrome, PO Box 2403, Julian, CA 92036; Peyton Read, (760) 765-3463


R.A.C.E., 725 Mangrove Ave., Chico, CA 95926; HobbyTown U.S.A., (916) 899-2977


Race Corner of Marin, 14 Commercial Blvd., #111, Novato, CA 94949; Mike, (415) 883-0388


Race Prep Raceway, 20115 Nordhoff, Chatsworth, CA 91311; Steve Dunn, (818) 709-6800


Racer's Haven Raceway, 7401 White Lane #12, Bakersfield, CA 93309; Martin Buchanan, (805) 835-0441


Radio Control Products, 201 E. Magnolia Blvd., #148, Burbank, CA 91502; Tab, (815) 846-4208


Rams 1/8-scale Gas, Mission College, Lot B, 3000 Mission College Blvd., Santa Clara, CA 95054-1897; Ken Kimbrow, (408) 238-2089


Ranch Pit Shop, 1655 E. Mission Blvd., Pomona, CA 91766; Ken Shintani, (909) 623-1506


Revelation Raceway, 4871 State St., Montclair, CA 91762; Tim Bump, (909) 464-8247


Ripon R/C Speedway, 701 N. Acadia Ave., Ripon, CA 95366; Dan Tanis, (209) 599-5160


Simi Valley Groundpounders, 205 Tierra Rejada Rd. (behind Simi Valley Drive-In), Simi Valley, CA 93065; Jack Kasten, (805) 584-8211


So. Cal R/C Raceway, 19118 Brookhurst St., Huntington Beach, CA 92646; Jim Blauvelt, (714) 963-7484


Stockton Raceway, 3133 N. Adart Rd., Stockton, CA 95215; Ultimate Hobbies, (209) 472-1991


Team Air Racing Club, 18208 Imperial Hwy., Yorba Linda, CA 92686; Don or Nicky, (714) 579-7488


Track Heaven, 6196 Child's Ave., San Diego, CA 92139; Loure, 475-2020


Tri-Valley Auto Racers, Livermore Elks Club, 940 Larkspur, Livermore, CA 94550; Roger Van Maren, (510) 449-0982


Ultimate Hobbies, 2143 N. Tunstun Ave. #6, Orange, CA 92665; Cliff Munukami, (714) 921-0424


Valley R/C Racepark, 146 S. Santa Fe St., Hemet, CA 92344; Valley Wide Recreation, (909) 654-1505 or 658-4322


COLORADO

MHOR R/C Raceway, 15540 East Batavia Dr., Aurora, CO 80011; Jess Brockman, (303) 343-0151

FOCUS

S&T R/C Raceway, 323 Auburn Dr., Colorado Springs, CO 80909, Tim Bishop, (719) 574-2910

FOCUS

Valley West R/C Club, 2202 I Road, Grand Junction, CO 81505; Waymond Williams, (970) 242-8846

FOCUS

CONNECTICUT

E.A.R.T.H., 2380 Main St., Rocky Hill, CT 06067; Ziggy Kwasnicki, (860) 296-5418

FOCUS

East Lyme R/C Kar Klub, Society Rd., East Lyme, CT 06333, Steve Brown, (860) 739-2911

FOCUS

K/N R/C Speedway Inc., West St., Stafford Springs, CT 06076; (860) 684-9896

FOCUS

Manchester Recreation and Entertainment Center, 290 Kott St., Manchester, CT 06040, Peter Tierinini, (860) 646-6243

FOCUS

R/C Madness, 640 Enfield St., P.O. Box 64, Enfield, CT 06082; Christopher Marcy, (860) 741-6501

FOCUS

DELAWARE

Eastcoast Off-Road, Rt. 3 Box 256 A, Laurel, DE 19956; Darrin Shockley or Steve Nelson, (302) 875-8160

FOCUS

The Hobby Outlet: Tracks of the Outlet, Salisbury Rd., Dover, DE 19901; Steve, (302) 697-8350

FOCUS

Hobby Stop Speedway, RD4, Box 100, Rte. 13, Seaford, DE 19973; Remy Haynes Jr., (302) 629-3944

FOCUS

FLORIDA

B+T R/C Central, 811 Playground Rd., Ft. Walton Beach, FL 32547; (904) 863-1666

FOCUS

Brantford R/C Speedway, Rt. 3, Box 240, Brantford, FL 32008; (904) 935-0758

FOCUS

Broward County R/C Race Club, Mills Pond Park, Ft. Lauderdale, FL; Ed Decembro, (954) 525-3304

FOCUS

Coral Springs Roadrunners, P.O. Box 9632, Coral Springs, FL 33075; Randy Witte, (954) 474-5934 or Rick Schwartz, (954) 344-1983

FOCUS

Fiesta 1/8 Scale Gas Oval/Road Course Circuit, 1137 Candlewood Circle, Pensacola, FL 32514; Tom Sirmon, (904) 477-6419

FOCUS

First Coast Speedway, 6410 Walther Dr., Jacksonville, FL 32211; Bob Thompson, (904) 743-2161

FOCUS

5-Fifty-S R/C Raceway, State Road 555, Bartow, FL 33830; John Goepferich, (941) 678-9111

FOCUS

Frontier Race Track, 15260 N.E. 244th Ave., Salt Springs, FL 32134; Harold Reel, (352) 685-2881

FOCUS

Gainesville R/C Speedway, PO Box 693, Melrose, FL 32666; 130 NW 14th Ave., Gainesville, FL 32601; (352) 495-3600

FOCUS

Greater Orlando Auto Racers, 970 Keller Rd., Altamonte Springs, FL 32714; Dave Mottin

FOCUS

Hobby World Raceway, 7273 103rd St., Jacksonville, FL; Ray or Greg, (904) 772-9022

FOCUS

The Hobby Stop Raceway, 5765 Manatee Ave. W., Bradenton, FL 34209; Rich Konnen, (941) 798-9638

FOCUS

The Hobby Stop Raceway, 2454 Land O'Lakes Blvd., Land O'Lakes, FL 34639; Rich Konnen, (813) 948-0606

FOCUS

Hudson's R/C Raceway, 590 Madeore St., St. Decembrine, FL 32095; Steve Hudson, (904) 826-4050

FOCUS

Louie Burton's R/C Raceway, 4215 Mustang Rd., Lakeland, FL 33803; Louie Burton, (813) 665-1322

FOCUS

Miami R/C Raceway, 12546 S.W. 88 St., Miami, FL

FOCUS

Minnreg R.C. Club, 6340 126th Ave. N., Clearwater, FL 34624; David Fox, (813) 787-6032

FOCUS

Morris Kohl's Raceway and Hobby Shop, 1202 W. Waters Ave., Tampa, FL 33604; Morris Kohl, (813) 931-1626

FOCUS

My Rose, 1695 W. Indiantown Rd., Jupiter, FL 33458; Mark Watson, (407) 744-3800

FOCUS

NORRA, 3300 Santa Barbara Blvd., Naples, FL 33999; Jerry Pecar, (941) 455-9065 or Mark Benfield, (941) 263-6861

FOCUS

Ocala Radio Control Car Club, 3500 SE 30th Terrace, Ocala, FL 34471; Steve Shook, (352) 694-5147

FOCUS

Paul's Stadium Raceway, 4511 W. Dr. M.L. King Jr. Blvd., Tampa, FL 33614; Paul Surette, (813) 872-8662

FOCUS

PBG R/C Motor Park, 6351 Barbara St., Palm Beach Gardens, FL 33418; Doug Gleason, (407) 743-9791 or Tim Case, (407) 827-2608

FOCUS

Pro Hobbies Speedway, 715 N. Lake Pleasant Rd., Apopka, FL 32712; (407) 886-4615

FOCUS

Port St. Lucie Racing, 3626 SW Rivera St., Port St. Lucie, FL 34953; Frank Spadavecchia, (561) 336-8711

FOCUS

Red's R/C Raceway and Hobbies, 1010 Creighton Rd., Pensacola, FL 32504; Linda Till, (904) 479-2330

FOCUS

River City R/C Car Club, 9711 Sharing Cross Dr., Jacksonville, FL 32257; Bill Fraden, (904) 268-1948

FOCUS

Sarasota Flat Track, 4900 Fruitville Rd., Sarasota, FL 34232; Jim Wilson, (941) 371-3689

FOCUS

South Daytona R/C Raceway, 2121 S. Ridgewood Ave., South Daytona, FL 32119; Mike Bean, (904) 426-6481

FOCUS

South Palm Beach Racers, South County Regional Park, West Boca Raton, FL 33486; Mike Fazio, (561) 338-5367

FOCUS

Southwest Florida R/C Raceway, 2425 Rivers Rd., Naples, FL 33984; Clyde Armstrong, (941) 455-1143

FOCUS

Superior Hobbies R/C Parking Lot Racing, 430 E. Hwy. 436, Suite #106, Casselberry, FL 32707; Robbie Michael, (407) 834-9299

FOCUS

Tallahassee R.C. Raceway, Tom Brown Park, Easterwood Dr., Tallahassee, FL 32311; Roland Costine, (904) 671-2814

FOCUS

Tampa Bay R/C Club, P.O. Box 10224, St. Petersburg, FL 33733; Dick Gillette, (813) 526-0744

FOCUS

Tampa Hobbystown R/C 4 Slot Car Raceway, 15702 N. Dale Mabry, Tampa, FL 33618; Max and Judy Rosenroth, (813) 968-7233

FOCUS

Winterset Raceway, US Rt. 27 South, Winterset Motel, Sebring, FL 33872; John Bisbee or Mac Myer, (941) 699-1140 or (941) 385-4448

FOCUS

GEORGIA

A&S Hobbies & Raceway, 3389 Cypress Mill Rd., Brunswick, GA 31520; Edward Davis, (912) 264-5489

FOCUS

Dalton Raceway, 2300 Chattahoochee Rd., Dalton, GA 30720; (404) 226-8699

FOCUS

Echeconnee Superspeedway, 2149 Richardson Dr., Macon, GA 31206; Andy Thompson/Cliff Kline, (912) 788-8731

FOCUS

Hobby Town Raceway, 2301 Airport Thruway, Columbus, GA 31904; Frank Bastos, (706) 660-1793

FOCUS

HobbyTown Raceway, 225-B Tom Hill, Sr. Blvd., Macon, GA 31210; Marcus Lee, (912) 474-0061

FOCUS

Lake Mayer Raceway, 1430 Dale Dr., Savannah, GA 31406; Pat Rossiter, (912) 354-0098

FOCUS

The Racer's Edge, 1530 Hwy. 19 N., Thomaston, GA 30286; Roger or Mark Walls

FOCUS

Sandy Cross Speedway, Rt. 1, Box 1071, Hwy 51, Royston, GA 30662; Morris Phillips or Wayne Fowler, (706) 245-9573

FOCUS

SHILOH R/C Raceway, 6362 Shiloh Rd., Hahira, GA 31632; Doug Burnett, (912) 794-2507

FOCUS

Silver Wings Raceway, 5611 Riverdale Rd., College Park, GA 30349; M. Bradshaw, (770) 991-2225

FOCUS

Stinger RC Super Speedway, 3769 Mayville Rd., Commerce, GA 30529; Deric Sauls, (706) 335-5006 or (706) 335-9944

FOCUS

Sugar Bowl R/C Speedway, 5272 Nelson Brogdon Blvd., Sugar Hill, GA 30518; Shelley Bailey, (770) 945-6709

FOCUS

Valdosta Hobbies, 3998 Inner Perimeter Rd., Valdosta, GA 31602; Ron Hood, (912) 244-2101

FOCUS

HAWAII

Garden Isle R/C Racers, 5855 Ahaka St., Kapaa, Kauai, HI 96748; Arnold Morales, (808) 823-0856

FOCUS

Kakaako Water Front Park Dragway, 98-029 Hekaha St., Aiea Bay #32, HI 96701; James Inkyo, (808) 487-5155

FOCUS

Keeli Lagoon Park, Leeward Community College, Waipahu, HI 96797; (808) 676-5486

FOCUS

Maui R/C Racing Association, 430 Hookahi St., #13, Wailuku, HI 96793; Titech R/C/Hobbies/Radio Control Association, (808) 244-0526

FOCUS

Pearl City Raceway, 98-029 Hekaha St., Bay 32, Aiea, HI 96701; James Inkyo, (808) 487-5155

FOCUS

Radio Control Hawaii, 474 Kalanikoa St., S-104, Hilo, HI 96720; Glenn Shiroma, (808) 935-5629

FOCUS

Team PRC Racing Club, 176 Mamo St., Hilo, HI 96720; Charlie Kawamoto, (808) 935-3561

FOCUS

IDAHO

Capital Dirt Burners, 301 N. Bruce, Boise, ID 83712; Mike Ard, (208) 345-3906

FOCUS

Dirt Stuff Plus, 5344 N. Yellowstone Hwy., Idaho Falls, ID 83401; Brian Krait, (208) 522-7576

FOCUS

River City Bandits, 4867 N. Yellowstone, Idaho Falls, ID; Chris Hummer, (208) 523-9846

FOCUS

Snake River R/C Raceway, 265 Highway 50, Hansen, ID 83334; Jim Tattersall, (208) 423-5122

FOCUS

ILLINOIS

AJ's Raceway & Hobby, 10211 Keslinger Road, Dekalb, IL 60115; A.J. Schultz, (815) 756-2772

FOCUS

C.I.R.C.A., 905 Bobbs St., Jacksonville, IL 62650; Sport 'n' Hobby, (217) 245-1375

FOCUS

C&R Hobbies, 39 E. Jones, Milford, IL 60953; Ray Craighead, (815) 889-4073

FOCUS

Dan's Hobby World, 18415 S. Halsted St., Glenwood, IL 60425; Dan, Bruce or Josh, (708) 754-7988

FOCUS

Diehard R/C Raceway, 300 N. Main, Kewanee, IL 61443; Dick Jennings, (309) 852-3700

FOCUS

Glenwood Roseway, 18417 Halsted, Glenwood, IL 60425; Don's Hobby World, (708) 754-7988

FOCUS

G&R Raceway & Hobbies, 533 Bank Lane, Highwood, IL 60040; Randy Rose, (847) 432-9600

FOCUS

HobbyTown Raceway, 9346 Virginia Rd., Lake in the Hills, IL 60102; Mike Hollingsworth, (847) 458-1777

FOCUS

HobbyTown Raceway, 2103 N. Veterans Pkwy., Bloomington, IL 61701; Gary Pritts, (309) 664-4451

FOCUS

Leisure Hours R/C Raceway, 24121 W. Theodore, Bldg. 1, Plainfield, IL 60544; Scott Hill, (815) 439-1777 (track), (815) 439-1477 (shop)

FOCUS

Machesney Park, 1220 Shappert Dr., Machesney Park, IL 61115; (815) 282-1311

FOCUS

Marty's R/C Hobby, 1335 E. Broadway, Bradley, IL 60915; Gail or Marty, (815) 933-8441

FOCUS

Miley Motor Speedway, 1109 N. Bloomington St., Rte. 23, Streator, IL 61364; Doug, (815) 672-4212

FOCUS

Monroe R/C Raceway, 26049 Ridgeland Ave., Monroeville, IL 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 799-5597

FOCUS

Pontoon Raceway, 3670 St., Route 111 Granite City, IL 62040-4304; Pat or Skip, (618) 931-1206

FOCUS

Outlaw R/C Speedway, 1614 Broadway, Mattoon, IL 61838; (217) 234-6229

FOCUS

R/C Workshop, 3100 S.W. Adams St., Peoria, IL 61605; Al Kretz, (309) 673-4860

FOCUS

Radio-Active Raceway, 751 N. Bolingbrook Dr., #15, Bolingbrook, IL 60440; Jim, (630) 759-7557

FOCUS

Rector's R/C Raceway, R.R. 3, Box 104, Albion, IL 62806; Tim Wolfe, (618) 842-9379 (M-F), (618) 446-3251 (Sun.)

FOCUS

Shiloh Eagles Superspeedway, 308 N. Virginia Ave., Belleville, IL 62220; (618) 277-6030

FOCUS

SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901; (618) 549-5885

FOCUS

Skokie Speedway, 4880 W. Dempster, Skokie, IL 60077; Pete, (847) 674-7349

Track Directory

Inside Challenge, 2028 Main St., Keokuk, IA 52632; Dan Hodges, (319) 524-2225

HOBBIES

Iowa City R/C Racing Association, 1700 First Avenue, Iowa City, IA 52240; Hobby Corner (319) 338-1788; (319) 354-6105

HOBBIES

IRORAR—Hawkey Downs Raceway, Hawkey Downs, 6th Street S.W. Cedar Rapids, IA 52404; Dave Kleinschrodt, (319) 556-8524

HOBBIES

Manly R/C Club, Box 23 (Hwy 65), Manly, IA 50456; Bruce Hill, (515) 454-2025

HOBBIES

Marble's Raceway, 4685 SE 40 St., Des Moines, IA 50317; Rick Marble, (515) 262-7507

HOBBIES

Mr. Car Raceway, P.O. Box 1112, Central Iowa Fairgrounds, Marshalltown, IA 50158; Jim Gossett, (515) 483-2234

HOBBIES

Outback Speedway, 403 State St., Guthrie Center, IA 50115; Helens Enterprises, (515) 747-3064

HOBBIES

Radio Control Raceway Park, 2100 First Ave., North, Fort Dodge, IA 50501; Bernie Halverson, (515) 576-3780

HOBBIES

Riverside Raceway, Veteran's park, Algona, IA 50511; Mike Beisch, (515) 295-9352

HOBBIES

Shentona Speedway, 1215 W. Lowell, Shenandoah, IA 51601; Doug Cross, (712) 246-5984

HOBBIES

Wild Bill's Raceway, 901 W. Jones, Knoxville, IA 50138; William Anderson, Jr., (515) 842-5973

HOBBIES

KANSAS

Hobbytown USA, 2016 W. 23rd, Lawrence, KS 66046; Kevin Decembarus, (913) 865-0883

HOBBIES

Mike's R/C Hobbies, 121 SE 29th Street, Unit #3, Topeka, KS 66605; Mike Barnard, (913) 266-5767

HOBBIES

Ottawa Outlaw Raceway, 412 South Main, Ottawa, KS 66067; Tom Wilson, (913) 242-1450

HOBBIES

R/C World Raceway, 217 Brownie Ave., Scranton, KS 66537; John and Kyle, (913) 793-2313

HOBBIES

RCRC Raceway, 507 N. 4th, Atwood, KS 67730; Bob Dunker, (913) 626-3261

HOBBIES

KENTUCKY

B&A Hobbies RC Raceway, 1741 Schrem Rd., Owensboro, KY 42301; William Rone, (502) 683-9776; fax (502) 686-7551

HOBBIES

Dixon's R/C Raceway, RR2, Box 505, hazard, KY 41701; Jeff Dixon, (606) 436-1902 or (606) 436-9559

HOBBIES

Johnny's Speedway, 3114 North Street, Lloyd, Greenup, KY 41144; Charles, (606) 473-0075

HOBBIES

Pit Stop Hobbies, 106 A Street, Benton, KY 42025; Robert Fitzgerald, (502) 527-8216

HOBBIES

ProTrak R/C Racing, 3451 Cane Run Rd., Louisville, KY 40211; Tony Hardin, (502) 778-2657

HOBBIES

Rick's Hobby Farm, 2089 Park Rd., Hawesville, KY 42348; Rick Early, (502) 927-8527

HOBBIES

Terry's R/C Hobbies, 691 Garner Ave., West Liberty, KY 41472; Terry McGuire, (606) 743-2126

HOBBIES

Trio Hobbies & R/C, 216 Redmar Plaza, Radcliff, KY 40160; Maurice Johnson, (502) 351-7547

HOBBIES

West Kentucky R/C Hobbies, 45 Hawkins Loop, P.O. Box 21, Symsonia, KY 42082; (502) 851-3534

HOBBIES

LOUISIANA

Al's R/C Store, 1529 Anita, Sulphur, LA 70663; Al Gaspard, (318) 625-5880 or (318) 437-8545

HOBBIES

Baton Rouge Velodrome, 7122 Perkins Rd., Baton Rouge, LA 70815; Weldon Sharon, (504) 665-5616; open Sunday 10-4

HOBBIES

Cajun R/C Raceway, 728 Perry Lane, Opel, LA 70570, (504) 948-6350

HOBBIES

Indy Speedway & Hobby, 3753 General DeGaulle Dr., New Orleans, LA 70131; Vince Sheetz, (504) 367-1391

HOBBIES

Pontchartrain Hobby Shop, 3755 Pontchartrain Dr., Slidell, LA 70458; (504) 649-1199

HOBBIES

Red River R/C Racers, 3203 Old Shad, Bossier City, LA 71111; David Gray, (318) 747-1863

HOBBIES

MAINE

Clay Bowl R/C Hobbies, P.O. Box 61, Greene, ME 04236; Pat Cap, (207) 946-5003

HOBBIES

R/C Speedway & Hobbies, 87 Main St., Fairfield, ME 04963; David Prescott, (207) 453-4588

HOBBIES

MARYLAND

Cockeysville Astrodome Racers, 10854 York Rd. (rear), Cockeysville, MD 21030; Steve Balaz, (410) 666-2521

HOBBIES

Countryside Raceway (portable), 406 Pamela Rd., Apt. C, Glen Burie, MD 21061; M.J.'s Pormotional Entertainment, (410) 761-6196

HOBBIES

Doug's Raceway, 2935 Crain Hwy., Waldorf, MD 20601; Doug Moran, Jr., (301) 843-6220

HOBBIES

Dusty Downs, 4665 Bethlehem Rd., Preston, MD 21655; Frank Show, (410) 673-2191

HOBBIES

Hobby Town USA, 8223-11 Elliot Rd., Easton, MD 21601; Bill Dyke, (410) 820-9308

HOBBIES

J.R.'s Race Place, 2935 Crain Hwy., Waldorf, MD 20601; James Radford, (410) 947-2766

HOBBIES

Outback R/C Race Club, Maiden La., Manchester, MD 21102; Randy or Bonnie Henry, (410) 848-4350

HOBBIES

The Track, 16806 Oakmont Ave., Gaithersburg, MD 20877; Mimi Wong, (301) 417-9630

HOBBIES

MASSACHUSETTS

C&C Hobby & Raceway, 562 Russells Mills Rd., So. Dartmouth, MA 02748; Charlie, (508) 997-4131

HOBBIES

Hi-Tech Hobbies, 1681 Broadway (Rt. 138), Raynham, MA 02767; Ruben, (508) 880-5373

HOBBIES

Megadrome Raceway, Rt. 8 Curran Hwy., North Adams, MA 01247; Bob Blanchette, (413) 743-7223

HOBBIES

New England R/C Headquarters, 33 Fr. DeValles Blvd., Fall River, MA 02721; Chuck Gregory, (508) 673-6069

HOBBIES

Northboro Speedway, 168 Main St., Rte. 20, Northboro, MA 01532; Bob trimble, (508) 393-8087

HOBBIES

West Street Hobbies, 114C Main St., Medway, MA 02053; Jim, (508) 533-1231

HOBBIES

MICHIGAN

Akright Outback Racing, 984 Zimmer Rd., Williamston, MI 48895; Steve Akright, (517) 655-4531

HOBBIES

Capital Area Racing Society, The Plumbers Hall, 5405 S. Logan, Lansing, MI; Dave Halsey or Brad Smith, (517) 646-8224 or (517) 484-4028

HOBBIES

Doug's Dirtway, 5210 Colby Rd., Owosso, MI 48867; Doug Conn, (517) 729-8376

HOBBIES

Down River R/C Association/Riders, 1519 Oak St., Wyandotte, MI 48192; Dave McCaslin, (313) 287-7405 or (313) 284-1560

HOBBIES

Freedom Hill R/C Raceway, 29330 Coolidge, Roseville, MI 48066; Curley Grewe, (810) 776-5483

HOBBIES

House of Hobbies, 2863 West Shore Dr., Holland, MI 49424; (616) 786-3686

HOBBIES

JT Superspeedway, W. Golden Ave., Battle Creek, MI; Jerry or Sam, (616) 965-0116

HOBBIES

Larry's Performance R/C's, 43665 Utica Rd., Sterling Heights, MI 48310; Larry, (810) 997-4840

HOBBIES

MCR Raceway, 4601 Page Ave., Michigan Center, MI 49203; Sam Sprang, (517) 787-9161

HOBBIES

Newberry R/C Raceway, RR 3 Box 2880, McMillan, MI 49653; Dustin Hart, (806) 293-3044

HOBBIES

Northwest Michigan R/C Club 744 Munson Ave., Traverse City, MI 49686; Jim Ovalett, (616) 947-6670

HOBBIES

R&L Hobbies & Racing, 9782 Portage Rd., Portage, MI 49002; Rex Simpson, (616) 323-3686; fax (616) 329-1744

HOBBIES

Rodgers R/C Raceway, 7463 Ridge Rd., Britton, MI 49229; George Rodgers, (517) 451-8301

HOBBIES

Thumb Raceway, 3441 Main St., Marlette, MI 48453; Jim Wilson, (517) 635-7848

HOBBIES

UCLA Hobbies, 2190 Clear Lake Rd., West Branch, MI; Bob Ruzanski, (517) 345-8018; fax (517) 345-8018

HOBBIES

USA Raceways, 6083 Dixie Hwy., Bridgeport, MI 48722; Dave Killingsworth, (517) 777-7USA

HOBBIES

Vicksburg Off-Road R/C Raceway, 50201 Silver St., Vicksburg, MI 49097; Jeff Schroeder, (616) 375-8591

HOBBIES

Village Hobbies-n-Crafts, 195 N. Elm, Hesperia, MI 49421; Alan or Fran, (616) 854-1374

HOBBIES

Village R/C Raceway, Prairie Ronde St., Decatur, MI 49045; Chuck Nolke, (616) 423-7878

HOBBIES

West Michigan R/C Racers Club, 814 E. Railroad St., Hastings, MI 49058; Doug, (616) 948-2287 or Pat, (616) 945-3873

HOBBIES

Westside R/C Raceway, 4335 Lake Michigan Dr., Grand Rapids, MI 49504; George Onikowski, (616) 791-9902; (Open May through December)

HOBBIES

MINNESOTA

Duey's Hobbies & R/C Raceway, 6600 Cahill Ave., Inver Grove Heights, MN 55076; Duey Carlson, (612) 450-1721

HOBBIES

Grand Rapids R/C Speedway, 2209 Hwy 2 East, Grand Rapids, MN 55744; Aaron Voges, (218) 326-6751

HOBBIES

Greater Minnesota Racin' Place, 3302 Southway Dr., St. Cloud, MN 56301; Jon Jackson, (320) 252-9768

HOBBIES

J's R/C Raceways, Rte. 2, Box 266, Starbuck, MN 56381; Jay Campbell (320) 239-4827

HOBBIES

Minn-E-Golf & Hobby, 9100 Park Ave., Elk River, MN 55330; (612) 441-8365

HOBBIES

Paul Bunyan Raceway, Rte. 1, Box 468, Bemidji, MN 56664; Brad Trask, (218) 243-2749

HOBBIES

Ray's Raceway Park, 105 3rd Ave. NE, Glenwood, MN 55334; Dan Winter, (320) 634-5246

HOBBIES

R/C Racing World, 235 Main Ave. North, Harmony, MN 55939; Mark McKay, (507) 886-5931 or (507) 886-2224

HOBBIES

Southside Speedway, 2241 Marion Rd. SE, Rochester, MN 55904; Kevin Guy, (507) 281-3233

HOBBIES

Trackside Racing, 443 8th Ave. NW, New Brighton, MN 55112; Winton Ofteile, (612) 633-2112

HOBBIES

Wild West R/C Speedway, 2822 Piedmont Ave., Duluth, MN 55811; Roger Deloach, (218) 727-6248

HOBBIES

MISSISSIPPI

Fast Freddy's Raceway, 20390 Hwy. 49, Saucier, MS 39574; Mark Payne, (601) 832-0315

HOBBIES

Joe McFadden Hobbies, 1619 51st Ave., Meridian, MS 39307; Joe McFadden, (601) 483-7000

HOBBIES

Small Cars Unlimited, 820 Cooper Rd., Jackson, MS 39212; (601) 372-FAST

HOBBIES

MISSOURI

All Seasons Hobby, 152 O'Fallon Plaza, O'Fallon, MO 63368; Bob Daniels, (314) 281-8767

HOBBIES

B&L Hobbies & Raceway, 2800 Anchor Dr., Park Hills, MO 63061; Bob Marler, (573) 431-9444

HOBBIES

Blue Vue Speedway, 12019 E. 47th St., Kansas City, MO 64133; Mark Randol, (816) 358-0238

HOBBIES

Columbia R/C Trax, 1502 W. Bus Loop 70 (Exit 125), Columbia, MO 65202; Gary Philippe, (573) 682-3993

HOBBIES

Fire Mountain Raceway, 6647 Commercial Blvd., Pevely, MO 63070; Dan Gordon, (314) 475-6449

HOBBIES

Greentree R/C Racepark, St. Louis Dirt Burners R/C Club, Marshall Rd., Kirkwood, MO; (314) 831-2194

HOBBIES

Ozark Mountain Speedway, Rt. #2 Box 50, H-Highway and County Rd. 31, Noel, MO 64854; Clayton Younker, (417) 475-6222

HOBBIES

Ozarks R/C Raceway, Hwy 13, Brighton, MO 65781; Gene Rhodes or Ron Hawkins, (417) 742-4376 or (417) 742-2561

HOBBIES

North Missouri Raceway,

Track Directory

NEW JERSEY

America's Hobby Center Inc., 18300 Tonnelle Ave., North Bergen, NJ 07047; John Many, (201) 662-0777


Ray's American Raceway, 142 Wilson Ave., Englishtown, NJ 07726; Ray Whitehead, (908) 446-3737


Family Hobbies Raceway, 3576 N.W. Blvd. & Weymouth Rd., Vineland, NJ 08360; Linda Vogel, (609) 696-5790


Golden Hobbies Raceway, 415 Erial Rd., Pine Hill, NJ 08021; John or Iona Golden, (609) 782-1222


Jefferson Speedway, 5494 Berkshire Valley Rd., Oak Ridge, NJ 07438; (201) 697-7525


Jerry's Hobby Center & Raceway, 336 Rt. 22W, Greenbrook, NJ 08812; Jerry or Gary, (908) 752-6030


LBRA Track, 392 Warburton Pl., Long Branch, NJ 07740; (908) 222-5122


Millville R/C Oval, 114 N. High St., Millville, NJ 08332; William Denstoz, (609) 327-4640


Pit Stop Dragway, 100 Campus Rd., Totowa, NJ 07512; Kimberly Frank, (201) 956-7223


On Trax Hobbies, 1549 Rte. 70, Browns Mills, NJ 08015; Joseph DiGirolamo, (609) 735-0422


R/C Shag Arena, 690 Jendi Pkwy., Totowa, NJ 07513; Amber Beggell, (201) 956-7223


South Jersey Cost Controlled Racing, 25 Jackson Lane, Sicklerville, NJ 08081; Ray Murray, (609) 629-4809


The Race Place, 1151 Hwy. 33, Farmingdale, NY 07731; John Fary, (908) 938-5215


NEW MEXICO

Meerscheldt R/C Raceway Park, Meerscheldt Recreation Center, Walnut and Hadley by BMX, Las Cruces, NM 88005; Robert Heinsen (505) 526-6856 or Jim Meerscheldt (505) 523-2995; email MEERSCH@aol.com


NEW YORK

BarnStormers, MD #1 Old Oxford Rd., Chester, NY 10918; Lou, (914) 469-8268


Beach Hill Speedway, 1760 Beach Hill Rd., Watkins Glen, NY 14891; Jim Riley, (607) 535-2616


Brian's Off-Road Track, 1124 N. Forest, Williamsville, NY 14221; Brian Was, (716) 633-8155


Brookport Speedway, 6000 Sweden Walker Rd., Brookport, NY 14420; Gil & Betty Glidden, (716) 637-6224


Brownie's Pro & Sport Hobbies, 124 Bennett St., Staten Island, NY 10302-1426; John Brown, (718) 727-2194

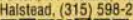

BSK Hobbies & Raceway, 120 Main St., Hornell, NY 14843; Bruce Harris, (607) 324-0111, (800) 603-0197.


C&D Raceway, 12542 NYS Rte. 12E, Chaumont, NY 13622; Chris or Don Bourquin, (315) 649-5403

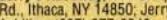

Capital District R/C Racers, 27 Venus Dr., Albany, NY 12205; Keith Green, (518) 783-8036


Chipmunk Hill R/C Speedway, 217 Pine St., Theresa, NY 13691; Ted or Pete House, (315) 628-5065

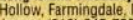

Frogtown Hobbies, Rt. 37, Mini Pines Village, Hogansburg, NY 13655; Dennis White, (518) 358-3686


Hal's Hobby Shop, 120 Cayuga St., Fulton, NY 13069; Hal & April Halstead, (315) 598-2772


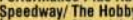
Hobby Images R/C Raceway, 89 Jerusalem Ave., Hicksville, NY 11801; Chris LaRussa, (516) 822-8259

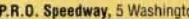

Jerry's Raceway, 111 S. Applegate Rd., Ithaca, NY 14850; Jerry and Lori Achilles, (607) 277-0940


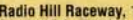
LI 1/4-Scale Racers, 63 Horton Dr., Huntington Station, NY 11746; (516) 351-5384

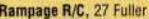

Long Island Raceway, 168 Broad Hollow, Farmingdale, NY 11735; James, (516) 845-7223


The Model Shop, 1 Lakewood Ave., Monticello, NY 12701; Richard Cimino, (914) 791-6075


Performance Plus Radio Control Speedway/The Hobby House, 1141 1/2 Jones & Gifford Ave., Jamestown, NY 14701; (716) 488-1772


P.R.O. Speedway, 5 Washington St., Cattaraugus, NY 14719; Marc Pritchard, (716) 257-3101


Radio Hill Raceway, 1219 Shannon Corners Rd., Dundee, NY 14837; Bill Brewer, (607) 243-8641


Rampage R/C, 27 Fuller Lane, Hyde Park, NY 12538; Brian Walker, (914) 229-1379; (914) 229-2456


R/C Competition Corner, 2413 Brewerton Rd., Mattydale, NY 13211; Lori and Cos Cirriello, (315) 455-8718


R/C Sport Hobby, 69-57 Juniper Blvd., South, Middle Village, NY 11379


R&S Hobbies, 356 Macedon Ct. Rd., Fairport, NY 14502; (716) 425-3722


Ringwood Junction, 1922 Dryden Rd., Freeville, NY 13068; Steve Miller, (607) 347-4198


Schoharie Co. R/C Car Club, P.O. Box 126, Cobleskill, NY 12043; (518) 922-6982


Southern Tier Raceway, 88 Paige St., Owego, NY 13827; Anita Harding, (607) 687-5395


South Shore Hobby & Raceway, W. Roe Blvd., Patchogue, NY 11772; Don Hauck, (516) 758-5567


Tri County Remote Control Car Club, 33 West Decker St., Johnstown, NY 12095; Jim Sprouse, (518) 762-8884


Tri-state Area Radio Control Model Auto Club (TRAMAC), 28/30 Mountain View Rd., Poughkeepsie, NY 12603; Todd (914) 342-5409; tracksite (914) 454-8276

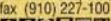

Walt's Hobby, 2 Dwight Park Dr., Syracuse, NY 13209; (315) 453-2291


Westfield R.C. Speedway, 27 Clark St., Westfield, NY 14787; John or Jared Lindstrom, (716) 326-2339

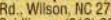

Whitestone, 30-56 Whitestone Expy. (Dept. of Motor Vehicles), Flushing, NY 11374; Rudolf Ardilla, (718) 966-6155

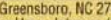

ZOAR Road Speedway, 15318 Armes Ct., Gowanda, NY 14070; David & Gordon Ackler, (716) 532-9463


NORTH CAROLINA

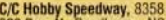
A&J R/C Models, 2051 Anthony Rd., Burlington, NC 27215; Jerry Loye or Andrea Thompson, (910) 227-4556; fax (910) 227-1001


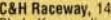
Another Zito's Mobile MASCARR Inc., 412 E. Blume St., Landis, NC 28088; Carmen Esposito or Pat Youngerman, (704) 451-3293

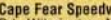

The Antique Barn, 2810 Forest Hills Rd., Wilson, NC 27893; Steve Seidinger, (919) 237-6778


Atlantic Coast R.C., 8-A Lockhead Ct., Greensboro, NC 27409; Charlie Higgins or Harry Johnson, (910) 664-1277


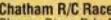
Badin Shore Raceway, 1730 Jackson Lake Rd., High Point, NC 27263; Jimmy or Tim Martin, fax (910) 431-6407


C/C Hobby Speedway, 3358 U.S. Hwy. 220 Bus. N., Randleman, NC 27317; Steve & Mary Cox, (910) 495-3482


C&H Raceway, 1400 N. Cannon Blvd., Kannapolis, NC 28083; Camera & Hobby Shop, (704) 933-5321


Cape Fear Speedway, 207 Harley Rd., Wilmington, NC 28401; Bob Justice, (910) 452-2354


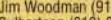
Carolina Dragway, 907-D Warsaw Rd., Clinton, NC 28328; (910) 592-4569

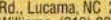

Chatham R/C Raceway, 326 Reno Sharpe Store Rd., Bear Creek, NC 27207; Dwight Fields, (919) 898-2991


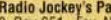
Hobby Club R/C Raceway, 1241 Buck Jones Rd., Raleigh, NC 27606; Hobby Club, (919) 460-8838


King R/C & Super Speedway, 143 Industrial Dr., P.O. Box 897, King, NC 27021; Chris Smith, (910) 983-5598 or (910) 883-3989


Ride & Slide R/C Raceway, 5319 Yadkin Rd., Fayetteville, NC 28303; Jim Woodman (910) 425-5276 or Bill Culbertson (910) 867-4202


R&J Off-Road Racing, 6172 Blalock Rd., Lucama, NC 27851; Robert Williams, (919) 239-0853 or Jonathan Jenkins, (919) 746-2703


Radio Jockey's Parkway, "R.J.'s", Rt. 9, Box 651, Fay, NC 28301; Tony Starling, (910) 486-4820


Rosewood R/C Speedway, 651 Community Dr., Goldsboro, NC 27530; Glenn Elam, (919) 731-4734


Southern RC Motorsports Club, Hwy. 17S, Shallotte, NC 28459, P.O. Box 1651; Mark Whit, (910) 754-4902 or Eddie Ferster (910) 754-8528


Ultratrax, 5505 Palmers Branch, Leland, NC 28451; Mike Williams, (910) 313-0350


NORTH DAKOTA

Hacienda Hills Speedway, 20 Hacienda Hills, Minot, ND 58701; Kenny Duchscherer, (701) 839-4419


Northern Mini Racers, P.O. Box 415, Minot, ND 58702; Roger Lee, (701) 839-5294


Surrey International Raceway, RR 1, Box 37, Norwich, ND 58768; Marlen Lenton, (701) 728-6760


OHIO

Aerotech Raceway, 409 Applegrove Rd., North Canton, OH 44720; (330) 499-1300

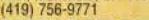

Canton R/C Raceway, 2206 13th St. NE, Canton, OH 44705; Dan Mauger, (330) 833-3091


Classic Hobbies, 1994 E. Waterloo Rd., Akron, OH 44312; Walt Ellis, (216) 733-6400


CR Raceways Emporium, 323 Center St., Ashtabula, OH 44004; Virginia Gagat, (216) 992-3833

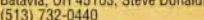

CORCAR/Sams Club, 128 Amity Rd., Galloway, OH 43119-8732; Bill Stevenson, (614) 870-7159


Columbus R/C Racing Club (C.R.C.R.C.), Franklin County Fairgrounds, Hilliard, OH 43026; Jeff Crowell, (614) 236-1783


D&D Hobby Center, 1344 Lexington Ave., Mansfield, OH 44907; Eric Radio (419) 756-9771


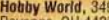
D&J R/C Raceway, 801 W. Market St., Orrville, OH 44667; Don Yoder or Mark Nussbaum, (330) 682-4266


Flag City Raceway, 3772 C.R. 18, Findlay, OH 45840; Ruth Hubbard, (419) 422-5589


Fun for All Raceway, 675 College Dr., Batavia, OH 45103; Steve Donaldson, (513) 732-0440


Greentown R/C Raceway, 3353 Perrydale, Greentown, OH 44630; Chuck Lambert, (330) 364-6585


Hobby Shop Raceway, 2096 Miami, Centerville Rd., Centerville, OH 45459; The Hobby Shop, (937) 436-6161


Hobby World, 3499 SR 59, Ravenna, OH 44266; Tom Fry, fax (330) 296-0694


Lafferty R/C Raceway, Box 153, 70228 Hurrah St., Lafferty, OH 43951; Chris Christman, (614) 968-4818


Lakes Hobbies, 3425 Manchester Rd., Akron, OH 44314; Roy Spencer, (330) 645-6912


Medina R/C Raceway, 754 N. Court St., Medina, OH 44256; Bill Aholt, (216) 723-0255


Mild American Raceway, 13150 Airport Hwy., Swanton, OH 43558; Bill or Chuck, (419) 475-9459


Mr. T's R/C Super Speedway, 5540 CR 16, Wauseon, OH 43567; Nick Tinsler, (419) 335-3196


Performance R/C Club of Ohio, 2206 13th St. NE, Canton, OH 44705; Greg Ledbetter, (216) 453-7089


Scouters Hobby Hut, 234 Robbins Ave., #D, Niles, OH 44446; Dave "Scooter" Evans, (216) 544-9411


TARCAR, 7216 Nebraska Ave., Toledo, OH 43617; Bill Bridges, (419) 826-3859


Tri-State R/C Auto Racers, Joyce Park, Hamilton, OH; Ernie Bauhoffer, (513) 528-2052


Van Wert R/C Raceway, 144 E. Main St. (above Hoveman Music), Van Wert, OH 45891; Mark Davis, (419) 232-2112


Y-City Hobby & Speedway, 120 S. 6th St., Zanesville, OH 43701; Kevin McKenna, (614) 455-3025

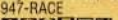

OKLAHOMA

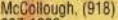
Adams Creek R/C Speedway, 5207 S. 194th E. Ave., Broken Arrow, OK 74014; John Beighle, (918) 355-1416


Competition R/C, 100 SE 89th, Oklahoma City, OK 73149; James or Louise Brown, (405) 634-0809


Coweta Hobby & Speedway, 310 S. Broadway, Coweta, OK 74429; Derald Seabolt, (918) 486-3948


R/C Speedway, 1401 N. Vanburan, Enid, OK 73701; Sean or Jessica Hillery, (405) 237-5504


Remote Control Race Course, 400 S. Vermont Ave., Suite 104, Oklahoma City, OK 73108; Rick or Steve, (405) 947-RACE


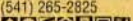
Wild Country Speedway, 127 South Main, Porter, OK 74454; Charles McDollough, (918) 685-0372 or (918) 687-1686


OREGON

Competition Racing Association, 17941 NE Gleason, Portland, OR 97241; Mark Taylor, (503) 761-1334


D.I.R.T. (Diamond International Race Track), 65540 73rd St., Bend, OR 97701; Daleyene and Edward Gleitz, (541) 388-2932


Junior Vehicle Speedways, 3090 Starwood Ct., Medford, OR 97501; (541) 779-3090


Pit Stop Hobby, 634 N. Coast Hwy., Newport, OR 97365; Richard Wood, (541) 265-2825


R



New Pro-Line 2.2-inch truck wheels are style and performance minded

Pro-Line's new "Eliminator" 2.2-inch truck wheels now provide T2, T3 and Double-XT 'CR' owners with stylish performance hop-up potential for their Associated or Losi trucks. These new 2.2-inch truck wheels are light-weight, molded in both dyable natural nylon and neon yellow. They are a direct fit to T2, T3 and Double-XT 'CR' truck kits and two options are available: ready-to-mount rubber tires or premounted foam tires.

New Pro-Line Eliminator 2.2-inch truck wheels for rubber tires

T2 and T3 fronts—2610 (Y*) type A
T2 and T3 rears—2611 (Y*) type A
Double-XT 'CR' fronts—2612 (Y*) type A
Double-XT 'CR' rears—2613 (Y*) type A
price—\$7.95/pair

*add Y for yellow

New Pro-Line/Jaco 2.2-inch truck mounted and trued foam tires

T2 and T3 fronts—2015 (LP*)
T2 and T3 rears—2016 (LP*)
Double-XT 'CR' fronts—2017 (LP*)
Double-XT 'CR' rears—2018 (LP*)
price—\$20.95/pair

*add LP for low profile



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Dakota Off-Road Racers, 2989 W. Br. Co. 12, Aberdeen, SD 57401; (605) 226-0604



Goldtrax Raceway, 409 E. High Lead, SD 57754; Steve Brown, (605) 584-2355



K&B Speedway, 27283 SD Hwy. #115, Harrisburg, SD 57032; Mike Kosetin, (605) 743-2582



R/C Action Raceway, SE Corner at 484th & Hwy. 38, Sioux Falls, SD 57105; Brian Cox, (605) 373-0511



TENNESSEE

Beaver Dam Racing, 7408 Royal Springs Knoxville, TN 37918; Ed Bardill, Tennessee Association of R/C Auto Racing, (423) 922-4309



D&M's Downtown Raceway, 2703 U.S. Hwy. 4115, Maryville, TN 37303; (423) 681-8919



Lawson Raceway, 152 Joel Rd., Oliver Springs, TN 37840; Anthony Lawson, (206) 815-0379



Machine-Head Straits, 938 Grandmere Rd., Lawrenceburg, TN 38464; Larry and Eliane Sanders, (615) 762-6630



MSA R/C Racing, Rt. 12 Box 489 B, Crossville, TN 38555; D.R. Findley, (615) 456-0027



Sparta Raceway Park, 32 N. Main St., Sparta, TN 38583; Carl (Buddy) Elrod, Rt. 5 Box #652, Sparta, TN 38583; (615) 836-8450 or (615) 761-3407

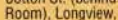


TnT Raceway, 643 Loop Hollow Rd., New Tazewell, TN 37825; Cliff Swett, (423) 626-9065 or (423) 869-8942

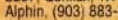


TEXAS

AA Raceway, 1617 Foomey Rd., Big Mike's R/C Raceway, 1405 W. Cotton St. (behind the Locker Room), Longview, TX 75604; (903) 297-7814



Drycreek Raceway, 5903 Co. Road 2297, Quinlan, TX 75474; Micky Alphin, (903) 883-4060



Eastex Raceway, 45000 Hwy. 59 N., New Caney, TX 77357; Brent Mahaffy, (713) 399-9777



Fastrack Raceway, 301 Edith Drivel, El Paso, TX 79924; Hector Gonzalez, fax (915) 779-4524



Flip & Spin R/C, 5957 Jones Rd., Bryan, TX 77807; Garland Crabb, (409) 822-7311



Hal's Hobby Raceway, 1440 Bessemer, El Paso, TX 79936; (915) 591-2213



The Hobby Center Raceway, 4104 Stan Schlueter Loop, Suite 1, Killeen, TX 76543; Lawrence Rernick, (817) 690-7311



Hobbycraft Speedway, 819 N. Main St., Corsicana, TX 75110; Keith Hoffman, (903) 872-6761



Hobbytown USA, 7676 FM 1960 W., Houston, TX 77070; Fred Pfatman, (713) 955-7097



Hobbytown USA, 999 E. Basse Rd., Suite 177, San Antonio, TX 78209; Joe Sena or Clark Baisdon, (210) 829-8697; fax (210) 829-8707



Indy R/C World, 220 Saturn Rd., Garland, TX 75041; Steve Webster, (214) 271-4844; fax (214) 271-4502



Keyser's Hobbies, 1643 Texas, College Station, TX 77840; Bill Bennett, (409) 693-8095



MBRC Off-Road Raceway, 1000 Oak Grove Rd., Fort Worth, TX 76115; Mike Batel, (817) 292-5055



North Houston Speedway, 11847 Spears Rd., Houston, TX 77067; Bob or Carol Hillin, (713) 872-2471



North Texas 1/2 Scale Association, 3905 Sandia, Plano, TX 75023; Dean Densmore, (972) 519-0324



Performance Raceway, 11066 Witte Rd., Houston, TX 77055; Jorge Tabush or Terry Schmid, (713) 464-4458



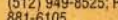
Rick's R/C Raceway, 238 Scenic Loop, Boerne, TX 78009; Rick, (210) 981-2245 or Rich (210) 590-1805



Rough Country, 905 Jacksboro Hwy., Wichita Falls, TX 76301-5310; Robert Kerr, (817) 322-2453



Star/Car Raceway, 5802 Patton St., Corpus Christi, TX 78415; Glen Stead, (512) 949-8525; Race Hotline, (512) 881-6105



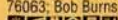
T&T Eagle, 161 W. Spring Creek Pkwy., #601, Plano, TX 75023; Tony Weiborn, (214) 517-0562



Texas Speedway, 6707 Chimney Rock, Bellaire, TX 77401



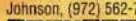
Tiger's Den R/C Speedway, 702 E. Broad St., Mansfield (DFW), TX 76063; Bob Burns, (817) 477-5513



T.O. Offroad Raceway, 6236 Quail, El Paso, TX 79924; Eren Saenz, (915) 821-7522



Triple Jays R/C Raceway, Route 4, Box 720, Allen, TX 75002; Jeffrey Jay Johnson, (972) 562-7967



Warehouse Radio Controlled Raceway, 612 W 4th St., Amarillo, TX 79101; Craig or Darren Waddell, (806) 374-6485



Wild Bill's Raceway, 535 E. Shady Grove, Irving, TX 75060; Lynn Morgan or Tom Nix, (214) 438-9224



UTAH

Intermountain R/C Raceway, 8481 W. 2700 S., Magna, UT 84044; David Mott, (801) 250-8303



Payson R/C Raceway, 955 South Main, Payson, UT 84651; Gus Wood, (801) 224-3852 and Lasca Wood (801) 222-8677



WOR Raceway, 3170 Brinker Ave., Ogden, UT 84401; Brian Worton, (801) 393-2530



VERMONT

Barre Town R/C club, 14 South Main St., Wall St. Complex, Barre, VT 05641; Russ Tribble or Pete Perreault, (802) 888-2860 or (802) 476-9458



Bradford R/C Racing, Main St., Bradford, VT 05033; Seth Bean, (802) 222-9674



Stoughton Pond Raceway, Stoughton Pond Rd., Perkinsville, VT 05151; Rick Adams, (802) 263-9321



VIRGINIA

Bob's Hobbies & Raceway, 7422 Brandywine Dr., Mechanicsville, VA 23111; Bob, (804) 746-2758



Brown Brothers Hobbies, 924 North Main Street, Dumfries, VA 22026; Joel or Bob Brown, (703) 221-5746



Cooper's R/C Race Center, 4000 Sago Rd. (369), Chatham, VA 22453; Norris Cooper, (804) 724-7342 or (804) 724-4182



Gloucester Scale Hobbies, 2352 George Washington Memorial Highway, Hayes Plaza, Hayes, VA 23072; Rob Thain, (804) 642-3484



Hobby Hangers Speedway, 14014 D Sullyfield Cir., Chantilly, VA 20151; Kwang or Billy, (703) 631-8820



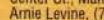
The Hobby House, 116 Edds Ln., Sterling, VA 20165; Oppie, (703) 444-0333



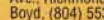
KC's Radio Control & Repair, Rt. 4, Box 312, Trents Ferry Rd., Lynchburg, VA 24503; Curtis or Kim Wright, (804) 384-8596



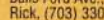
Olde Towne Hobby Shoppe, 9105 Center St., Manassas, VA 22110; Annis Levine, (703) 369-1197



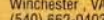
Race World Hobbies, 6102 Lakeside Ave., Richmond, VA 23228; Larry Boyd, (804) 553-8040



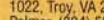
Roadmasters/ Rick's Hobbies, 12201 Balls Ford Ave., Manassas, VA 22110; Rick, (703) 330-6833



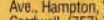
Shamroc Raceway, P.O. Box 3739, Winchester, VA 22601; Kevin Allen, (540) 662-0403



Thunder Road RC Racing, PO Box 1022, Troy, VA 22974-1022; James Palmer, (804) 589-8174



Trackside Hobbies, 1920 E. Pembroke Ave., Hampton, VA 23663; Rick Cardwell, (757) 723-4170

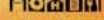


Trainlano R/C Racing, 5661 Shoulders Hill Rd., Suffolk, VA 23435; Frank Stevens, (757) 488-5454

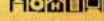


WASHINGTON

Allie's, 108 South K St., Aberdeen, WA 98520; (360) 533-6838



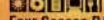
A-Main Raceway, 14011 NE 3rd Ct., Vancouver, WA 98685; Monty Coleman, (360) 571-8404



Burien Toyota R/C, 15025 1st Ave. South, Seattle, WA 98148; Ray Meek, (800) 654-6456



C&C Raceway, 266 Lind Ave. NW, Renton, WA 98055; Charles Lakin, (206) 227-5167



Four Season R/C Racing, 2941 Sleater Kinney Rd. NE, Olympia, WA 98506; Gary and Sharon Brown, (360) 491-2430



Hale's R/C Raceway Park, 10611 136th St. E. Puyallup, WA 98374; Walt Hale, (206) 845-7675



Hannegan Speedway, 4212 Hannegan Rd., Bellingham, WA 98225; Dana Hoggarth, (360) 734-4090



Raceway Hobbies, 188 Sunset Ave. S., Edmonds, WA 98020; Brian Bodine, (206) 774-3285



Schmidt's Auto Parts, 10305 Old Hwy. 99, Marysville, WA 98271; Jon Falla, (206) 653-8838



Spokane Indoor Raceway, 6422 E. 2nd Ave., Spokane, WA 99212; Dave Mapston, (509) 534-RACE



Tacoma R/C Raceway, 6305 6th Ave., Tacoma, WA 98406; Scott Brown, (206) 565-1935



Tearor Raceway, Fantasy World Toy and Hobby, 7901 S. Hosmer, Tacoma, WA 98408; Dave Kleinman, (206) 473-6223



Ultimate R/C Raceway, 907 Cole St.
Elumclaw, WA 98022; Dan
Daugherty, (360) 802-2388
[phone icon]

Zep's Hobbies & Raceway, 530
Interlake, Moses Lake, WA 98837;
Steve Ralph, (509) 765-8191
[phone icon]

WEST VIRGINIA

Burr-Fab Raceway, 90 Davis St., West
Union, WV 26456; Mark Travis, (304)
873-2487
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Fulton's R/C Raceway, 2646 Chapline
St., Wheeling, WV 26003; James
Fulton, (304) 233-5355
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Left Turn Hobbies, 100 Saco Ln. (by
Post Office), Glen White, WV 25849;
Stretch, (304) 255-3930
[phone icon]

Race Zone, Hopewell Rd., Rt. 8, Box
343A, Fairmont, WV 26554; Joe
Clutter (304) 368-1000
[phone icon]

WVRCA R/C Club, 142 West Main,
Bridgeport, WV 26330; D.W. Weed
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WISCONSIN

Bayland Hobbies, 951D
Ashwaubenon, Green Bay, WI 54304;
Dan or Jay Boettge,
(414) 339-8288
[phone icon]

Hobbytown USA, 2061 South Koeller,
Oshkosh, WI 54901; Hobbytown USA,
(414) 426-1840
[phone icon]

**JJ's Dirt Heaven Hobby and
Raceway**, 6028 County Road K, New
Frankview, WI 54229; Jeff Jansen
(920) 866-9096
[phone icon]

Mid-West Tri-Clone, 3745 Shuster,
West Bend, WI 53095; Tom Holz,
(414) 334-0429
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NARCAR Raceway, 4331 E. Wall St.,
Eagle River, WI 54521; Mary O'Brien,
(715) 479-5154
[phone icon]

Pro-Star Racing, 726 Pine St., Green
Bay, WI 54301; Chuck, (414) 494-
1233 or Terry, (414) 469-5566
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**S&N's Trackside Hobbies and
Raceway**, 6045 N. Green Bay Ave.,
Milwaukee, WI 53209; Scott Ernst,
(414) 351-1910
[phone icon]

WYOMING

**Collectable Creations Off-Road Oval
Track**, 1790 Dell Range Blvd.,
Cheyenne, WY 82009; Phil Severson,
(307) 632-2156
[phone icon]

Wind River R/C Racing Association,
113 S. 3rd E., Riverton, WY 82501;
Bob Belding, (307) 857-2068
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Xtreme Hobbies Raceway, 2724
Powder Basin, Gillette, WY 82718;
Krieg Balls, (307) 682-6077
[phone icon]

ARGENTINA

Club A. Velez Sarsfield, Av. J.B.
Justo 9000, C.P. 1408, Buenos Aires;
Jorge Herrero, 54-01-658-5851
[phone icon]

Club A. Velez Sarsfield, Av. J.B.
Justo 9000, C.P. 1408, Buenos Aires;
Jorge Herrero, 54-01-658-5851
[phone icon]

AUSTRALIA

A.C.T. Model Car Racing Club,
offroad track—Wanniassa Raceway,
Hyland Place, Wanniassa A.C.T.;
indoor track—Epic Complex,
Northbourne Ave., Canberra North
A.C.T.; Gary Davey, 61-6-2871411
[phone icon]

Aubry R/C Car Club, Aubry
Showgrounds, Aubry, NSW 2640; Ron
Langman, 060-247-128
[phone icon]

Canberra Off-Road Model Car Club,
Goyder St., Narrabundah, ACT 2604;
Graham Brown, 61-6-241-3070
[phone icon]

Central Coast ORRCC, EDASCC Sports
Complex, Bateau bay, N.S.W. Australia
2261; Peter J. Knight, 61-43-693-698
[phone icon]

Fast n' Fun, 250 Potreath Rd.,
Bellbrae West, Torquay, VIC 3228
Australia; Stephen Chra (613) 5266
1550 or (613) 5266 1556; fax (613)
5266 1556
[phone icon]

Illawarra RCECC, Croome Sporting
Complex, Albion Park Rail, NSW
2527; Mel or Andrew, 042-714-683
[phone icon]

Lakeside R/C Racing Car Club,
Hollywood Rd., Lansvale, NSW 2166;
R. Bartolozzi, 62-2-907-9800
[phone icon]

**Melton Electric Circuit Car
Association**, Safeway Car Park
Corner High St. and Coburns Rd.,
Melton, VIC 3337; Arthur Joslin, 61-3-
9747-8805
[phone icon]

Northern Districts Model Rally Club,
Inc., Rear Stanford centre, 16
Stanford Way, Malaga, Western
Australia 6066; G. Thirlwell, 61 (9)
249 3855; fax 61 (9) 249 4778; email
tony@ois.com.au
[phone icon]

Penfield Park, DSTO Complex
Sailbury, Adelaide, South Australia
5108; Trevor Unsworth, (618) 8289-
5010
[phone icon]

Templestowe Flat Track Racers,
Templestowe Reserve, Corner of
Porter St. and Williamsons Rd.,
Templestowe, Melbourne, Victoria
31066; Renato Benci, 61 (3) 9553
4625
[phone icon]

Wodonga R/C Car Club, 11 Murphy
St., Wodonga, VIC 3690; Ron
Langman, 61-60-247-128
[phone icon]

BELGIUM

ATR-Alka-Tele-Racing, 3570
Stationstraat 21, Alken Limburg;
0032-11-25-49-03
[phone icon]

Cartroubles Indoor Buggy Track, Jan
Moonsstraat 52-56, 2160 Womme-
lgen, Belgium; Guy Erms, 32-3-326-
51-15; fax, 32-3-326-51-01
[phone icon]

MBV-Kampenhout, Teniers 28,
Kampenhout B1910, Belgium; Frank
Mostrey, phone and fax 0-16-65-75-18
[phone icon]

MRCZ, Centrum, De Burg, Belgium;
Montie, 75-71-63
[phone icon]

Model Racing Club Oudenaarde,
Scheldekant, 9700 Oudenaarde,
Belgium; A. Chantene, 32-55-31-36-
48; fax, 32-55-30-19-12
[phone icon]

R.C.R., Pellstraat 43, Retie 2470,
Belgium; A. Eelen, phone and fax, 32-
14-379685
[phone icon]

BRAZIL

Amoc Cassioçao de Modelismo B.
Camborio, Junto ao Par Que
Ecologico de Bal. Camborio, Bal.
Camborio, S.C. 88.330-000; Leo
Cesar, (047) 366-0001
[phone icon]

Brasília R/C Motor Circuit,
Estacionamento do Estádio Mane
Guarrincha, Brasília, DF 70000, Brazil;
Alexandre (Alex), 55-061-273-7205
[phone icon]

Hobby Center, SQS.210 Bl.H
Apt. 204, Brasília, DF-Brasil 70.273;
061-242-0488
[phone icon]

Jungle Drive, Rua Alberto Maranhão,
No. 219 Icha do Gov. Rio de Janeiro,
21940-490; Paulo Brito, (021) 396-
0851 or (021) 393-7449
[phone icon]

MP Raceway, AV. Nacoes Unidas,
6815 Lapa, São Paulo; Gerd Heitrotter,
55-11-9819039
[phone icon]

Off Roaders, Av. Guillermo Dummont
Villars, 317, São Paulo, CEP 05640;
Waldir Ielpo, (055) 011-260-5628; fax
(055) 011-831-4931
[phone icon]

Way of R/C Off-Road Carrera, Rua
Paraíba 1323, 1st floor, Belo
Horizonte, Minas Gerais; Claudio T.
Correa, (031) 227-6111, fax (031)
227-6869
[phone icon]

CANADA

Action Weelz, 462 Turcotte, Vanier,
Quebec, G1M 1R6; Regent Tardif,
(418) 527-5756
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Advance R/C Raceway, 4181
Sheppard Ave. E., Scarborough,
Ontario M1S 1T3; Albert Lau, (416)
321-8377
[phone icon]

A&J Toronto R/C Raceway, 24 Main
St., Building B, Unionville, Ontario
L3R 2E4; (905) 305-1479
[phone icon]

ATN, Auto Teleguide Nicolet, 2000
Rue Paul Hubert, Saint-Jean-Baptiste-
de-Nicolet, Quebec J3T 1E5; Louis
Durand, (819) 293-6097
[phone icon]

Auto Sprint, 6065 Des Grands
Prairies, St. Leonard, Quebec H3G
2R6; David Kalayjian, (514) 287-3503
[phone icon]

Circuit J.C., 1283 Chemin, St. Philipe,
St Polycarpe, Quebec JOP 1X0; Jean
Castellon, (514) 267-7854
[phone icon]

Circuit Pepsi, Centre de Location, 37
duRoi, Sorel, Quebec; (514) 746-8828
[phone icon]

Circuit Plessis, 260 Rang 9 Ouest,
Plessisville, Quebec G6L-2Y2; (819)
362-3743
[phone icon]

Circuit R/C Pro, 1500 Chemin
Sullivan, Val'd'Or, Quebec; J9P 1M1;
R/C Modeler Plus, (819) 874-3918
[phone icon]

Circuit Teleguide St. Roch, 363-B St.
Charles, St. Roch De L'Acigian,
Quebec JOK 3H0; (514) 588-4254, fax
(514) 588-6554
[phone icon]

Circuit Teleguide Grand Prix, 9600
Ignace, Ste. C, brossard, Quebec J4Y
2R4; (514) 444-1286
[phone icon]

Club Avatt, 244 Jules-Richard,
Deauville, Quebec JIN 3; Daniel Vanier,
(819) 864-6262
[phone icon]

Club RC51, 44 Rue Holliday, Sept-lies,
Quebec G4R; Sylvio Gerard,
(418) 968-6575; Hobby Shop,
(418) 962-6565
[phone icon]

CRCCC, Box 309, Clinton,
Ontario NOM 1L0; Eric Russell,
(519) 482-9429
[phone icon]

CTG, 450 Chemin de la grand ligne,
Granby, Quebec; (514) 358-4419
[phone icon]

CTL, 495 Industriel, Longueuil, Quebec;
(514) 358-4419
[phone icon]

Dustkickers R/C Raceway, 1785
Cypress Rd., Quesnel, British
Columbia V2J 4B1; Darrell Dinsdale,
(250) 747-2680
[phone icon]

Dynamic Hobbies, 21 Concourse
Gate, Unit 6, Nepean, Ontario,
K2E7S4; Clark Freeman,
(613) 225-9634
[phone icon]

East Coast Model Center Raceway,
13 Glen Stewart Dr., Suite 1,
Southport, Prince Edward Island C1A
8X9; Gary Stephen, (902) 569-3262
[phone icon]

Evolution Speedway, 1935 Glengrove
Rd., Pickering, Ontario L1V 1X3; Eric
Lamp, (905) 839-2084
[phone icon]

Fast-Trax Speedway, RR 4,
Trenton, Ontario; Russ McPeak,
(613) 394-6411
[phone icon]

**Fly'n Bryan's Radical Raceway &
Little Shop of Hobbies**, RR #1, Site
12, Comp. 49, Chase, British
Columbia, Canada V0E 1M0; Bryan
Coffey/ Dani Potvin, (604) 955-0669
[phone icon]

Honda House Motor Speedway, 384
Richmond St., Chatham, Ontario N7M
1P9; John Elliot, (519) 354-5530
[phone icon]

Interior R/C Raceway, 34-1605
Summit Dr., Kamloops, BC, V2E 2A5;
Martin Vannieuwenhuizen, (604) 374-
1268 or (604) 374-8458
[phone icon]

J-T International Raceway, 127
Milligan Lane, Nanapanee, Ontario K7R
8A1; N. O'Neill, (613) 354-0099
[phone icon]

Leading Edge R/C Speedway, 731
Gardiners Rd., Kingston, Ontario K7M
3Y5, Canada; Mike and Tony Daicar,
(613) 389-4878
[phone icon]

Mid-Canada R/C Speedway, 1678 St.
James St., Winnipeg, Manitoba R3H
0L3; Richard Driedger, (204) 339-6566
[phone icon]

Minatures & Passions,
204 St. Charles, #103, Ste. Therese,
Quebec, Canada J7E 2 B4; Gilles
Lachance, (514) 979-7989
[phone icon]

MORRAC Raceway, 6449 Crowchild
Tr. SW., Box 36060, Calgary, Alberta
T3E 7C8; (403) 254-1386
[phone icon]

Off-Road R/C Raceway, 76 Eddystone
Ave., North York, Ontario M3N-1H4;
Ron Lefebvre, (416) 740-0536
[phone icon]

**Prince George Radio Controlled Car
Club**, 202 Explorer Cres., Prince
George, B.C. Y2M5R8; Doug Waller,
(604) 561-0035
[phone icon]

Quintrax Speedway, 610 Dundas St.
East, Belleville, Ontario K7K 2M1;
(613) 962-1414; fax (613) 962-7306
[phone icon]

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Jungle Jumpin'

Here's Scary Fast Raceway (it's scary all right!)—the first winner of the Trick Track Award introduced in the September "Back Lot." OK, so it's not the Ranch Pit Shop North. So what if it looks more like a nature trail than a decked-out off-road circuit. So what if it looks as if Mugwa and Uncas from "Last of the Mohicans" should be racing there. SO WHAT! The point is, these guys worked their butts a little instead of whining a lot. Now, they have a place to race. My kind of guys ... my page ... they win.

Dear Chris,
After reading the "R/C Men of Action" my friend Ryan Hartler and I decided to build an off-road track in my backyard. My backyard is all woods and it's full of big plants.

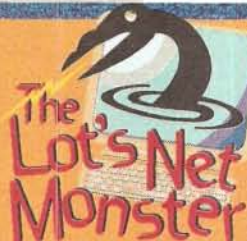
On the first day, we hacked our way through all the plants to make the basic layout—a demented oval shape. Then we weeded the whole thing, removing small roots



and dead leaves. After that, we dug out all the big rocks and shoveled off the small ones. Then we took dirt and made double jumps and a banked turn (in the picture). The track also has a tabletop jump, but the picture of it didn't turn out. Then we searched for big logs to line the sides of the track. This took forever because finding logs the right shape was hard. The track isn't too wide, but at least my friend and I have a place to race now. We live in Renforth, New Brunswick, Canada, and it's way too small to have a commercial track. I estimate that there are only about 30 racers in all of Renforth, and me and my friends account for five of them. Well, that's how my friend and I built an R/C track in my backyard. The whole project only took about a week!

Sincerely,
Varoujan Arman and Ryan Hartler

Varoujan and Ryan,
I get way too many emails from guys who can't seem to take on any challenge at all. Sometimes, I think they're going to ask me to fly cross-country so I can oil their bushings for them! Just when I was beginning to think there were nothing but complainers and whiners out there, I get encouragement from two racers who literally hacked a track out of the wilderness. Good work, guys! Now you have a place to race and a one year's free subscription to Car Action. CC



Some views from the brilliance ever present on the Internet

Secrets of the Seal

I just read your article about powerbands in the August issue of R/C Car Action. I must say, you are so right! I mean, amen; I have a Honda ATC 250R (2-stroke racing 3-wheeler), and before I rebuilt the engine a couple of months ago, the powerband was very narrow; it drove me crazy! I rebuilt the engine and it has constant power now (I can pull a wheelie in almost any gear). The same is true of my little Turbo Inferno's engine. I have a Paris O.S. RX-B engine and an O.S. RG. The RG was running really bad—no power; no guts; nothing! I

rebuilt it (new piston/sleeve) and, boy, it runs like new. I really am fond of this little engine. I think has the best powerband for its price. Sometimes, I even use it to race instead of my Paris engine! Anyway, thanks for the great column, and keep up the good work.
Anthony Bellotti

Yea; a good seal is everything. That piston and sleeve fit affects everything: reliability, throttle response, fuel-draw, idle—everything; not just high-end performance as some think.

Thanks for the support Tony.

CC

Sponsored Nice Guys

I have to say I love your mag! I've been subscribing for about six years, and you have done a great job ever since I've been a reader. I love "Back Lot"! I just want to tell everybody who thinks the sponsored racers are stuck-up snobs and don't care for other racers that this isn't true. While I was at the Cactus Classic this year, I met almost all the Losi-sponsored guys,

and they are really great. I just want to say thanks to Matt Lee of Team Losi for all the help he gave me. Thanks a lot you guys for your time. R/C Car Action RULES!!!
Mac Mitchell
Oakbomb@juno.com

Mac, I know there have been some horror stories about sponsored racers, but in reality, such stories are rarely true. The top racers—especially the ones who have been around for a while—are mostly great guys who really enjoy helping others and sharing information. They do get anxious and totally focused on winning and, at times, can't deal with friendly conversation, but that's true of any serious racer, pro or non-pro. We all need to avoid making generalizations and to deal with everyone on an individual basis.

Thanks for your message and support of Car Action. We all appreciate it; we surely do. CC

Ask Yourself

I am still getting beaten by guys with stock motors. Are those the

type of motor they use in races like the IFMAR Worlds? And if they are, what sort of gearing should I use? Right now, I have a 15-turn single Speedworks gem Topaz; I use an 18- or 19-tooth pinion with an 87-tooth spur gear, and I still get beaten by guys with stock motors. Please help.
Your faithful reader,
Dennis A.
Robson8@aol.com

The motor isn't the only factor that determines how you should gear your car. It depends mostly on the track you race on. See how the winning guys at your track are gearing.

But more important, Dennis, I want you to go to the mirror and ask yourself this question: "If these guys are beating me and my modified motor using their stock motors, are they better drivers than I am?" (Be honest, Dennis.) It sounds to me as if you need to practice instead of looking to a hot motor for a victory. Reality can be annoying, but practicing can be fun. Have fun. Be great! CC